# Model Tests from the School Book

## Model Test 1

### 1 Choose the correct answer:

1) $(-1)^8 + (-1)^9 = \dots\dots$ (0 or –1 or 1 or –2)

2) The image of the point (–3,4) by translation ($x$ , y – 4) is ..........
((– 3,0) or (–7,4) or (–3,8) or (–1,4))

3) {0} .......... $\mathbb{N}$ ($\in$ or $\notin$ or $\subset$ or $\not\subset$)

4) When tossing a die once and observing the upper face, then the probability of getting a number greater than 6 = .......... ($\varnothing$ or 0 or $\frac{1}{6}$ or $\frac{1}{3}$)

### 2 Complete the following:

1) $\left|\frac{5-11}{3}\right|$ .......... $\mathbb{Z}$ by using ($\in$ or $\notin$ or $\subset$ or $\not\subset$)

2) If $x + 6 = 2$ where $x \in \mathbb{Z}$, then $x$ = ..........

3) In the opposite figure ABCD is a rectangle, then the area of $\Delta$ ABC = .......... $cm^2$.

D A B C 3 cm 4 cm

4) A box contains 5 white balls, 3 blue balls and 8 red balls. All of the balls are identical. If a ball is chosen randomly when you close eyes, then the probability that the chosen ball is red = ..........

### 3

a) Find the result: $(4 \times 3^2) \div 3^2 - (7 \times 3)$ ..........

b) Find the solution set of the inequality: $x - 2 \geq 3$ where $x \in \mathbb{Z}$ ..........

### 4

a) A cuboid box with a square base of side length 10 cm and its height is 7 cm.
Find the lateral surface area of the box.

b) The circumference of a circle is 88 cm, find its area.

### 5

a) Find the solution set of the equation $3x + 9 = 3$ where $x \in \mathbb{Z}$.

b) The following table shows the percentage of the production of a factory of house electric sets.

| Types of the sets | Washing machine | Oven | Heater | Mixer |
|---|---|---|---|---|
| Percentage of production | 30% | 40% | 15% | 15% |

Represent these data using the circular sectors.

# Model Test 2

## 1 Choose the correct answer:

1) If $2x = 6$, then $x \in$ .......... ($\mathbb{N}$ or $\varnothing$ or $\mathbb{Z}^+$ or $\mathbb{Z}^-$)

2) The circumference of the circle = .......... $\times \pi$ (r or 2r or $r^2$ or r+2)

3) A die is tossed once, then the probability of getting the number 5 = ..... ( 0 or $\frac{1}{6}$ or $\frac{5}{6}$ or 1)

4) The number which satisfies the inequality $x > -2$ is .......... (–1 or –2 or –3 or –4)

## 2 Complete the following:

1) $\frac{2^3 \times 2^5}{2^2}$ = ..........

2) The set of the counting numbers (⊂) .......... $\mathbb{N}$

3) The total surface area of a cube is 150 $cm^2$, then its side length is .......... cm.

4) The result of a mathematics test of October for $6^{th}$ grade in a school is recorded in the following table:

| Excellent | Very good | Good | Weak |
|---|---|---|---|
| 8 | 18 | 16 | 6 |

Then, the probability that a student obtains good = ..........

## 3

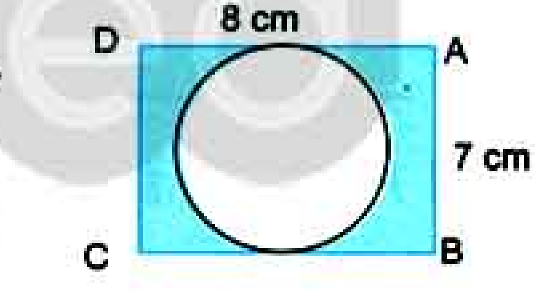
1) Find the value of (6 × –5) – ((2 × 3) ÷ 3)

2) Find the solution set of the inequality $x - 2 \geq 3$ where $x \in \mathbb{Z}$, then represent the solution on the number line.

## 4

a) Find the solution set of the equation $2x + 9 = 5$ where, $x \in \mathbb{Z}$.

b) In the opposite figure ABCD is a rectangle, its length is 8 cm and its width is 7 cm. Calculate the area of the shaded part.




## 5

a) On the coordinate plane, determine the following points A (2,3), B (4,3) and C (4,7) then find:

1) The length of $\overline{BC}$ = .......... length units.

2) The image of Δ ABC by translation (0 , –4).

b) The following table shows the percentage of a number of students who participated in school activities.

| Activity | Cultural | Sports | Social | Arts |
|---|---|---|---|---|
| Percentage of students | 5% | 45% | 15% | 35% |

Represent these previous data by the circular sectors.

# Model Test 3

(for students with special needs)

## 1 Complete the following:

1) $|3|$ = ..........

2) The probability of the impossible event = ..........

3) If $x + 2 = 3$, $x \in \mathbb{N}$, then $x$ = ..........

4) The perimeter of the base of a cuboid is 10 cm, its height is 4 cm. Then its lateral area = ..... $cm^2$.

## 2 Choose the correct answer:

1) $2^5 \times 2^2$ = .......... ($2^7$ or $4^7$ or 1)

2) The surface area of a circle = $\pi \times$ .......... (r or $r^2$ or 2r)

3) $\mathbb{Z}^+ \cup \{0\}$ = .......... ($\mathbb{Z}^-$ or $\mathbb{N}$ or $\mathbb{Z}$)

4) When tossing a die once, then probability of getting an odd number = ....... ($\frac{1}{6}$ or $\frac{1}{3}$ or $\frac{1}{2}$)

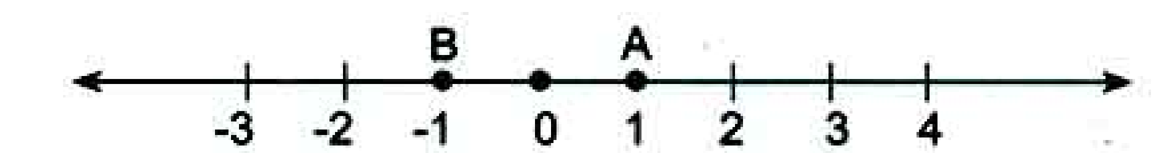
## 3 Put (✓) true or (✗) false:

1) $|-5| + 5 = 10$ (   )

2) If $3x = 9$, then $x = -3$ (   )

3) The probability of the sure event = zero. (   )

4) In the following figure the distance between points A and B = 2 units. (   )



## 4 Join from column (A) to column (B):

| | A | B |
|---|---|---|
| 1 | The sum of the measures of the angles of the sectors about the centre of the circle = ........... | $\in$ |
| 2 | 2 ........... $\mathbb{Z}^+$ | 360° |
| 3 | The solution set of the inequality $x + 2 < 5$, $x \in \mathbb{N}$, is .................. | (4 , 4) |
| 4 | The image of the point (3 , 2) by translation (1 , 2) is .................. | {0 , 1 , 2} |

## 5 Complete the following:

a) The length of the edges of a cube is 4 cm. Calculate its total area and lateral area:

The total area = 6 × ...........

The lateral area = 4 × ...........

b) Find the result: $\frac{2^3 \times (-2)^4}{2^5} = \frac{2^{\ldots + \ldots}}{2^5} = 2^{\ldots} = \ldots\ldots$

# 24 Examinations from Different Governorates 2018/2019

**(Note: Show your steps at the 3rd question in each exam.)**

## 1 Cairo - EL-Sahel Educational Zone

### 1 Choose the correct answer:

1) $\mathbb{Z}^- \cap \mathbb{N} =$ ............... ($\mathbb{Z}$ or $\mathbb{N}$ or $\mathbb{Z}^-$ or $\varnothing$)

2) The additive inverse of $(-3)^2$ is ............ ($(3)^2$ or $(-2)^3$ or $-(3)^2$ or $\frac{1}{9}$)

3) The equation $x^2 + 1 = 3$ is of the ........... degree. (first or second or third or fourth)

4) If a fair die is thrown once, then the probability of getting the number 5 equals ............... . ($\frac{5}{6}$ or Zero or $\frac{1}{6}$ or 1)

5) If a = 2 , b = – 4, then 3 ab = ........... (–10 or –24 or 2 or –12)

6) If A (2 , 3) and B (6 , 3), then the length of $\overline{AB}$ is ........... length units. (2 or 3 or 4 or 5)

7) A circle of diameter length 10 cm, its area = ........... $\pi$ cm². (100 or 50 or 25 or 5)

8) If $x = -2$, y = |–3|, then $x$ + y = .............. (–5 or 1 or 5 or 6)

9) The image of the point .............. by translation ($x$ – 3 , y + 4) is (–5 , –3). ((–2 , –7) or (–2 , 7) or (–8 , 7) or (–8 , 15))

10) $2^3 \times 2^2 =$ .............. ($4^6$ or $4^5$ or $2^6$ or $2^5$)

11) If the probability of success of a student is 0.8, then the probability of his failure is ............... (80% or 0.4 or 1 or 0.2)

12) If the set of substitution is {1 , 2 , 3 , 4}, then the solution set of the equation $x + 6 = 10$ is .............. ({1} or {2} or {3} or {4})

### 2 Complete each of the following:

13) A cube, the area of its face = 9 cm², then its total surface area = ............... cm²

14) $\mathbb{Z} - \mathbb{Z}^+ =$ ...............

15) The image of the point (–2 , 5) by translation (1 , –3) is ............... .

16) If $2x = 6$ then $6x =$ .............. .

17) The sum of measures of the angles of the sectors around the centre of the circle = .............. °

18) If the perimeter of the base of a cuboid is 10 cm, its height is 5 cm, then its lateral area = .............. $cm^2$.

19) If $-x > 3$, then $x <$ .............. .

20) The total area of a cuboid is 132 $cm^2$ and its lateral area is 112 $cm^2$, then the area of its base is .............. $cm^2$.

## 3 *Answer the following questions:*

21) **Find** the solution set of the equation $3x - 7 = 11$, where $x \in \mathbb{Z}$.

22) A circle of diameter length 14 cm is divided into 7 equal circular sectors, **calculate** the surface area of one sector where $\left(\pi = \frac{22}{7}\right)$.

23) **Find** the solution set of the inequality $x - 2 \leq 3$ where $x \in \mathbb{N}$

24) If the perimeter of the base of a cube is 28 cm:

a) **Calculate** its lateral area.

b) **Calculate** its total surface area.

25) The following table shows the percentages of a number of students participating in the school activities.

| Activities | Arts | Sports | Computer |
|---|---|---|---|
| Percentages | 25% | 40% | 35% |

**Represent these data by circular sectors (pie chart).**

## 2 Cairo - Heliopolis Directorate - St.Joseph's School

### 1 Choose the correct answer:

1) $\mathbb{Z} - \mathbb{Z}^- =$ ............... ($\mathbb{Z}^-$ or $\mathbb{Z}^+$ or $\{0\}$ or $\mathbb{N}$)

2) $2^3 + 1^3 =$ ............... ($3^3$ or $3^6$ or $3^2$ or $3^9$)

3) The image of the point (–3 , –3) by translation 3 units in the positive direction of y-axis is ............... ( (0 , 0) or (0 , –3) or (–3 , 0) or (–3 , 3) )

4) The measure of a angle of the sector which represents third of the circle = ............... ° (30 or 60 or 120 or 180)

5) The number that satisfies the inequality $x > -2$ is ............... (–1 or –2 or –3 or –4)

6) If a < b, then –3a ............... –3b (< or > or = or ≤)

7) When tossing a fair die once, then the probability of getting the number 3 is ............... ($\frac{1}{2}$ or $\frac{1}{3}$ or $\frac{1}{6}$ or 1)

8) If $2x + |-3| = 1$, then $x =$ ............... (2 or –1 or –4 or 8)

9) The lateral area of the cube of edge length 10 cm is ......... $cm^2$. (40 or 400 or 600 or 1000)

10) The additive inverse of $(-1)^6$ is ............... ($(1)^6$ or $(-1)^7$ or $(-1)^8$ or $(-1)^0$)

11) $|-4| + (-2)$ ............... $\mathbb{N}$ (∈ or ∉ or ⊂ or ⊄)

12) The circumference of the circle = ............... ($\pi r$ or $2\pi r$ or $\pi r^2$ or $2\pi r^2$)

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### 2 Complete the following:

13) The lateral area of the cuboid = the perimeter of base × ......................

14) The greatest negative integer is ......................

15) The probability of the impossible event = ......................

16) $\frac{(-3)^7 \times (-3)^2}{(-3)^6} = (-3)^x$, then $x =$ ......................

17) If A (–3 , 2) and B (–3 , – 4), then the length of $\overline{AB}$ = ............ length unit(s).

18) 3 × (–5) = (–5) × 3 is called ...................... property

19) $\{x : x \in \mathbb{Z}, -2 < x \leq 1\} =$ ...................................................... in listing method.

20) The image of the point (0 , –2) by translation $(x - 3, y + 2)$ is ......................

## 3 Answer the following questions:

21) Find the solution set in $\mathbb{Z}$ of the equation: $2x + 11 = 3$

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22) Use the properties of addition and multiplication to find the result of:

$37 \times 17 + 37 \times (-17)$

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23) A carpet in the shape of a circle of radius length 3.5 m. If the price of one metre square of this carpet is 100 pounds, then find the price of the whole carpet. $\left(\pi \simeq \frac{22}{7}\right)$

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24) Find the total area of a cuboid box of dimensions 3 cm, 2 cm and 6 cm.

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25) The following table shows the percentages of a number of students participating in some favourite school activities:

| Activities | Sports | Reading | Music |
|---|---|---|---|
| Percentages | 25% | 35% | 40% |

Represent these data by a pie chart.

## 3 Cairo - El-Sayeda Aisha - Rod El-Farag Educational Zone

### 1 Choose the correct answer:

1) $-5$ .............. $\mathbb{Z}^+$ ($\in$ or $\notin$ or $\subset$ or $\not\subset$)

2) If $2x = 8$, then $x + 1 =$ .............. (4 or 2 or 16 or 5)

3) A circle of diameter 8 cm, its area = .............. $\pi$ cm$^2$ (4 or 8 or 16 or 64)

4) If $a = -3$ , $b = 2$, then $(a)^b =$ .............. ($-6$ or 9 or $-9$ or $-8$)

5) $(-1)^{13} + (-1)^{10} =$ .............. (0 or 2 or 1 or $-2$)

6) The number that satisfies the inequality $x > -4$ is .............. ($-5$ or $-6$ or $-4$ or $-3$)

7) If the area of one face of a cube is 9 cm$^2$, then its total area = .............. cm$^2$.
(12 or 27 or 36 or 54)

8) The probability of the impossible event is .............. (0 or 1 or $-1$ or 2)

9) If A (2 , 7), B (2 , 3), then the length of $\overline{AB}$ = .............. units. (3 or 4 or 5 or 7)

10) $9^7 + 9^5 =$ .............. . ($9^{14}$ or $9^2$ or $9^{zero}$ or $9^{35}$)

11) The equation $3x^3 - 6 = 14$ is of the .......... degree. (first or second or third or fourth)

12) The measure of the angle of the circular sector which represents $\frac{1}{4}$ from the area of a circle is .............. (30° or 60° or 90° or 45°)

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### 2 Complete the following:

13) The image of the point $(-1 , 4)$ by translation $(x + 1, y - 3)$ is ...................

14) $\mathbb{Z}^+ \cap \mathbb{Z}^- =$ ...................

15) A fair die is thrown once, then the probability of getting the number 5 is ..............

16) The lateral area of the cuboid = perimeter of base X ...................

17) $\frac{(-2)^7 \times (-2)^5}{-2^{10}} =$ ...................

18) The sum edge lengths of cube is 48 cm, then its lateral area = ................... cm$^2$.

19) If $x = -2$, $y = |4|$, then $xy =$ ...................

20) The cuboid of lateral area 120 cm$^2$ and perimeter base 20 cm, its height = ................... cm.

## 3 Answer the following questions:

**21)** Use the distributive property to **find**: $32 \times 117 - 32 \times 17$

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**22)** **Find** the S.S. of the inequality $2x - 2 \geq 4$, where $x \in \mathbb{Z}$.

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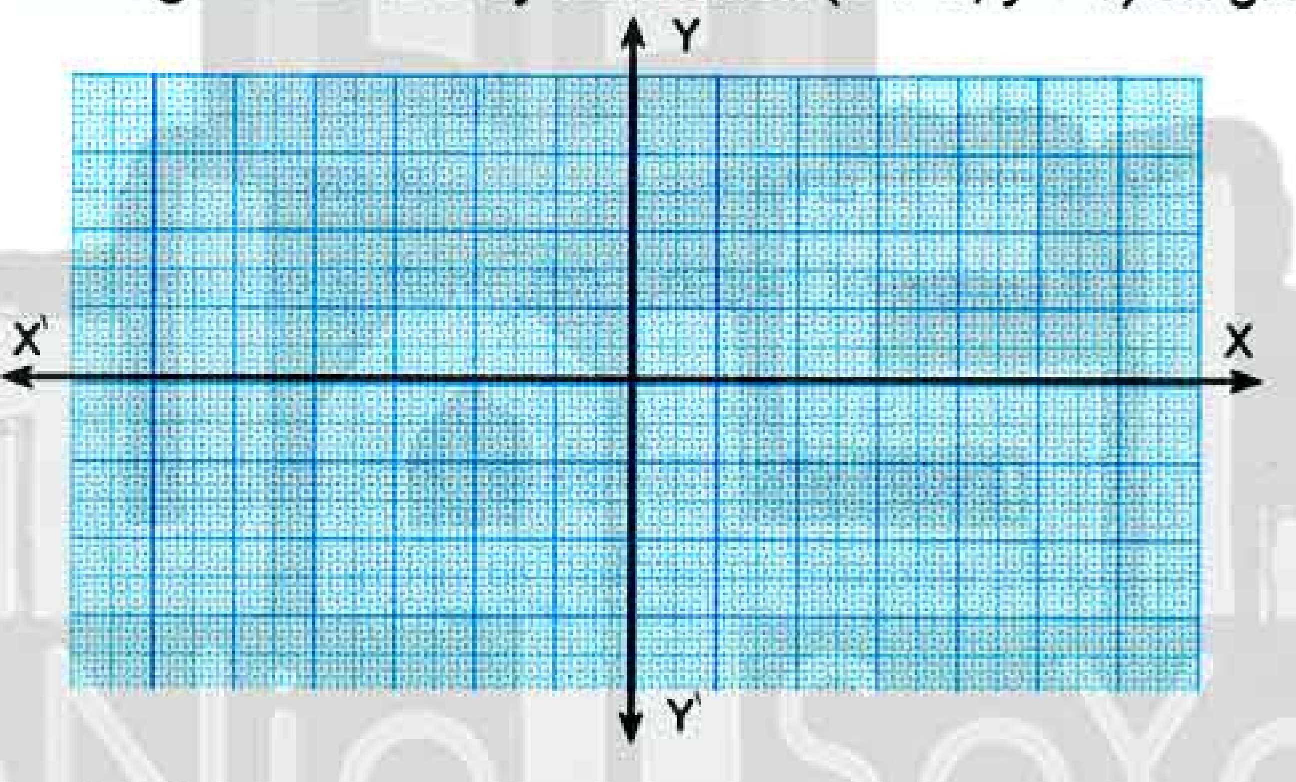
**23)** A cuboid box with a square base of side length 10 cm and its height is 6 cm.

**Find** its lateral area and total area.

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**24)** In the Cartesian coordinate plane **locate** the points A (1 , 1) , B (–3 , –1), C (0 , –2), then **draw** the image of Δ ABC by translation ($x$ + 5, y – 1) on graph.




**25)** From the following table:

| Farm | 1st | 2nd | 3rd | 4th |
|---|---|---|---|---|
| Percentage of the production | 40% | 25% | 20% | 15% |

**Represent these data by a pie chart.**

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## 4 Cairo - Al-Zeitoun Educational Administration - Gomhoria Language School

### 1 Choose the correct answer:

1) $(-1)^3$ ............... $(3)^{zero}$ ($<$ or $=$ or $>$ or $\geq$)

2) $|-5| + 4$ ............... $\mathbb{Z}^-$ ($\in$ or $\notin$ or $\subset$ or $\not\subset$)

3) The smallest non-negative number is ............ (1 or 0 or −1 or −2)

4) $x + 1 = 7$ is of the ............... degree (zero or 1st or 2nd or 3rd)

5) The solution set of the inequality $-2 \leq x < -1$ is ...............

({−2 , −1} or {−1} or {−2} or ∅ )

6) The additive inverse of |−3| is ................... (0 or 3 or −1 or −3)

7) $\frac{25-5}{4}$ ............... $\mathbb{Z}$. ($\in$ or $\notin$ or $\subset$ or $\not\subset$)

8) The image of the point (4 , −2) by translation ( $x$ + 2 , y −1) is ...............

((4 , −2) or (2 , −1) or (6 , −3) or (−2 , −1))

9) A circle of diameter 10 cm, its area = ................... $\pi$ cm². (25 or 100 or 3.14 or 31.4)

10) The lateral area of a cuboid of length 3 cm, width 2 cm and height 4 cm is ............. cm² (20 or 24 or 40 or 52)

11) If the probability of the pupils who succeeded in a classroom is 0.7, then the probability of the pupils who are expected to fail is ............

(0.3 or 0.1 or 12 or 28)

12) P (∅) = ............ (1 or 0 or $\frac{1}{2}$ or $\frac{5}{3}$)

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### 2 Complete the following:

13) The solution set of inequality $x - 1 < 0$ in $\mathbb{N}$ is ...................

14) $\mathbb{Z}^+ - \mathbb{Z}^- =$ ...............

15) A circle its circumference is 88 cm, then its radius length = ............... cm. $\left(\pi \simeq \frac{22}{7}\right)$

16) $\frac{2^2 \times 2^6}{2^3} =$ ...............

17) A cube of volume 1000 cm³, its side length is ............ cm.

18) Having A ( −2 , 1) and B (3 , 1), then the length of $\overline{AB}$ = ............... length unit(s).

19) The probability of the certain event = ...............

20) If the area of one face of a cube is 9 cm², then its total area = ...............

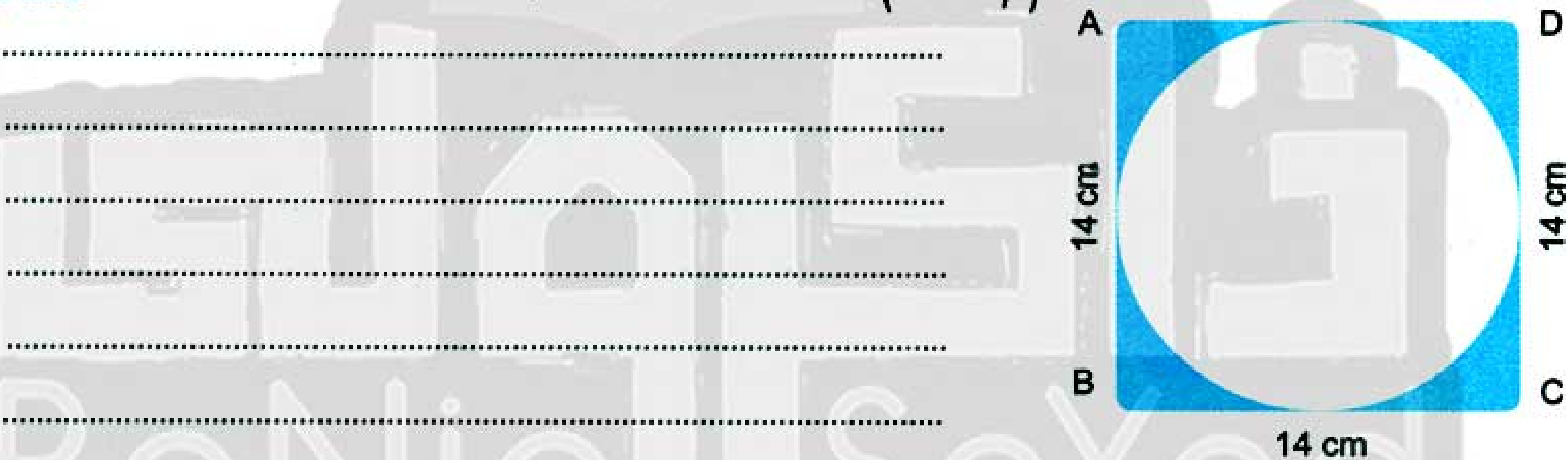
## 3 Answer the following questions:

**21)** Use the distribution property to find: 3 × (–2) + 3 × 5

**22)** Find the solution set in ℕ : $3x - 2 = -17$

**23)** The sum of edge lengths of a cube is 144 cm. Find its lateral area and its total area.

**24)** Find the area of the shaded part: $\left(\pi \simeq \frac{22}{7}\right)$




**25)** The following table shows the number of students participating in school activities.

| Activities | Cultural | Sports | Social | Arts |
|---|---|---|---|---|
| Percentages | 25% | 50% | 15% | 10% |

**Represent these data by a pie chart.**

## 5 Cairo - El-Marg Educational Directorate - El-Shams Language School

### 1 Choose the correct answer:

1) When tossing a coin once, then the probability of getting a head is ............... (0 or 1 or 0.5)

2) If the area of one face of a cube is 9 $cm^2$, then its total surface area is ............... $cm^2$ (36 or 54 or 81)

3) $\mathbb{Z}^+ \cap \mathbb{Z}^- =$ ............ ($\mathbb{Z}$ or $\varnothing$ or $\mathbb{Z}^-$)

4) The measure of the central angle of the circular sector which represents $\frac{1}{12}$ from the area of the circle = ............... (90° or 60° or 30°)

5) $(-1)^8 + (-1)^9 + (-1)^{zero} =$ ............... (−1 or 1 or 0)

6) If a dice is tossed once, then the probability of getting a prime number = ............... ($\frac{1}{3}$ or $\frac{1}{2}$ or 1)

7) If $4x = 24$ , $x \in \mathbb{Z}$, then $x =$ ............... (12 or 24 or 6)

8) The multiplicative neutral element in $\mathbb{Z}$ is ............... . (0 or 1 or 2)

9) $|-5| + 3$ ................... $\mathbb{Z}$ ($\in$ or $\subset$ or $\not\subset$)

10) The image of the point (−1 , 2) by translation (−2 , 3) is ................... ((0 , 5) or (1 , 3) or (−3 , 5))

11) If the diameter length of a circle is 20 cm, then its area = ........ $cm^2$. where ($\pi$ = 3.14) (314 or 3.14 or 0.314)

12) $5 \times |-4| =$ ............ (20 or −20 or 9)

13) $5^7 \div 5^5 =$ ............ ($5^{12}$ or $5^2$ or $5^0$)

14) $\varnothing$ ................... {a , b} ($\in$ or $\subset$ or $\not\subset$)

### 2 Complete the following:

15) 3 × (−2) = (−2) × 3 is called .................. property.

16) (−4) × [(4) + (−4)] = ...............

17) If A (2 , 4) and B (2 , −1), then the length of $\overline{AB}$ = ............... units.

18) If the sum of edge lengths of a cube is 96 cm, then its lateral area = ............... $cm^2$.

19) If the equation: $x^2 - 3 = 6$ is of the ............ degree.

20) If $x \in \{2 , -2\} \cap \{4 , -2\}$, then $x =$ ...............

21) $\frac{5^3 \times 5^4}{5^7}$ = ..............

22) If the probability of the appearance of the event A is $\frac{5}{7}$ , then the probability of the non-appearance of the event A = .............

## 3 Answer the following questions:

23) a) Find the solution set in $\mathbb{Z}$ of the equation: $2x+1 = -9$

..........

..........

b) Find the solution set in $\mathbb{Z}$ of the inequality: $3x - 2 \leq 7$

..........

..........

24) A cuboid its length is 6 cm, its width is 4 cm and its height is 8 cm. Find its lateral area and its total area.

..........

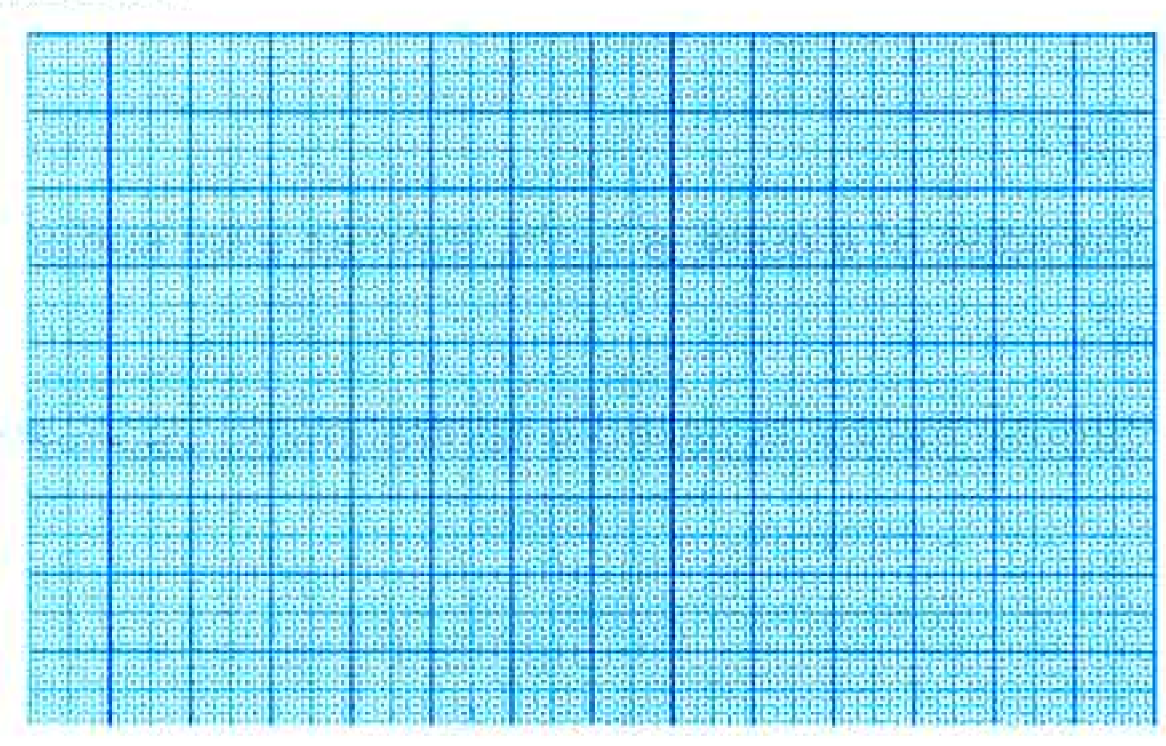
..........

25) The following table shows the percentages of the favourite sport for the pupils in one of the schools:

| Favourite sports | Football | Handball | Basketball |
|---|---|---|---|
| Percentage | 50% | 30% | 20% |

Represent these data by circular sectors.

26) On the coordinate plane, determine the points A (2 , 2), B (1, 0), C( 3 , 0) , D (4 , 2), then find its image by translation ( $x$, y + 4) and what is the name of the shape ABCD?



## 6 Giza - 6th October Directorate - Sun Gate L.Schools

### 1 Choose the correct answer from those given:

1) The integer number which is included between –2 and 3 is ........ (3 or –3 or –4 or –1)

2) $\frac{-5}{7}$ ................ $\mathbb{Z}$ ($\notin$ or $\subset$ or $\not\subset$ or $\in$)

3) $(-1)^2 + 1 =$ ......... (–2 or 0 or 1 or 2)

4) The image of the point (–3 , 4) by translation (0 , – 4) is ..........

[(–3 , 0) or (–7 , 4) or (–3 , 8) or (–1 , 4)]

5) {Zero} $\subset$ ............ ($\mathbb{Z}^+$ or $\mathbb{Z}^-$ or $\varnothing$ or $\mathbb{Z}$)

6) A cube of edge length 6 cm, its total area = .......... $cm^2$ (36 or 72 or 144 or 216)

7) A die is thrown once, then the probability of getting the number 5 = ..........

(0 or $\frac{1}{6}$ or $\frac{5}{6}$ or 1)

8) If the length of the radius of a circle is 10 cm, then its surface area equals .......... $cm^2$. ($\pi \simeq 3.14$) (3.14 or 31.4 or 314 or 3140)

9) If $x - 1 = 2$, then $x =$ .......... where $x \in \mathbb{N}$ (3 or 1 or –1 or –3)

10) $|-7| + 7 =$ ............ (–14 or zero or 7 or 14)

11) If the total area of a cube is 600 $cm^2$, then its edge length = ............ cm

(5 or 10 or 6 or 100)

12) The measure of the angle for the circular sector of half a circle is ........

(90° or 120° or 180° or 270°)

### 2 Complete each of the following:

13) The probability of the impossible event = .............. .

14) $\mathbb{Z}^+ \cap \mathbb{Z}^- =$ ..............

15) $32 \times 85 + 15 \times 32 =$ ..............

16) If the length of the edge of a cube is 4 cm, then its total surface area equals ........... $cm^2$.

17) The angle of a circular sector is called a central angle because its vertex is ............... of the circle.

**18)** The solution set of the inequality: $x + 1 < 5$, $x \in \mathbb{N}$ is ............ .

**19)** If $x \subset \{2, -3\} \cap \{5, -3\}$, then $x =$ ............

**20)** The lateral area of a cuboid = ............

## 3 Answer the following questions:

**21)** Find the result of each of the following:

**a)** $(-5) \times [7 + (-5)]$ **b)** $\frac{7^4 \times 7^5}{7^7}$

**22)** Find the solution set of the inequality: $2x - 3 < 1$ where $x \in \mathbb{N}$ and represent it on the number line.

**23)** Find the solution set, where $x \in \mathbb{Z}$ : $x + 4 > 5$.

**24)** In the coordinate plane, represent the points A (0 , 1), B (2 , 1) and C ( 2 , 4), then find:

**a)** The length of $\overline{BC}$ .

**b)** The image of $\Delta$ ABC by translation (0 , 2).

**25)** The following table shows the number of students participating in some activities:

| Activities | Cultural | Sports | Social | Arts |
|---|---|---|---|---|
| Percentages | 10% | 40% | 15% | 35% |

Represent these data by a pie graph.

## 7 Giza - Al-Haram Educational Area

### 1 Choose the correct answer:

1) $\mathbb{Z}^+ \cap \mathbb{Z}^- =$ .............. ($\mathbb{Z}^+$ or $\mathbb{Z}^-$ or $\varnothing$ or $\mathbb{N}$)

2) The greatest negative integer is ............... (0 or –1 or 1 or 2)

3) If $7x = -14$, then $x =$ ............... (7 or –2 or –7 or –21)

4) The degree of the equation $x^3 - 4x^2 = 12$ is ............... (3rd or 2nd or 1st or 4th)

5) All the following numbers satisfy the inequality $x > -3$ except ...............

(0 or –1 or –2 or –4)

6) The image of the point (–3 , 5) by translation ( $x + 3$ , $y - 5$) is ..............

( (6 , 10) or (0 , 5) or (0 , 0) or (3 , 0) )

7) If $x = -1$ , $y = 2$, then the value of $x + y =$ .............. ( 2 or 3 or 1 or –1)

8) $(-1)^8 + (-1)^9 =$ ............... (1 or Zero or 2 or –2)

9) When tossing a coin the probability of getting a head is ........... ($\frac{1}{2}$ or 1 or $\frac{3}{4}$ or $\frac{1}{4}$)

10) **In the opposite figure:**

Area of $\Delta$ ABC = ...............$cm^2$ (12 or 6 or 10 or 7.5)




11) If a circular sector represents $\frac{1}{3}$ of a circle, then the measure of its central angle = ........

(120° or 90° or 60° or 180°)

12) A cube its edge length is 3 cm, then its total area = ............. $cm^2$. (54 or 36 or 27 or 9)

### 2 Complete the following:

13) If a = 3 , b = –2, then the value of: –3 ab = ............

14) If $x - 3 = 4$, then $x =$ ............

15) If $x = (3 , 2)$, $y = (3 , -4)$, then the length of $\overline{xy}$ = ............ units.

16) A cuboid, its dimensions are 3 cm, 4 cm and 5 cm, then its lateral area = ........... $cm^2$.

17) If 2y = 8, then y + 3 = ....................

18) The probability of the impossible event = ....................

19) A circle, its radius length is 7 cm and then its circumference = .................. $\pi$ cm.

20) The lateral area of the cube = area of one face × ..................

## 3 Answer the following questions:

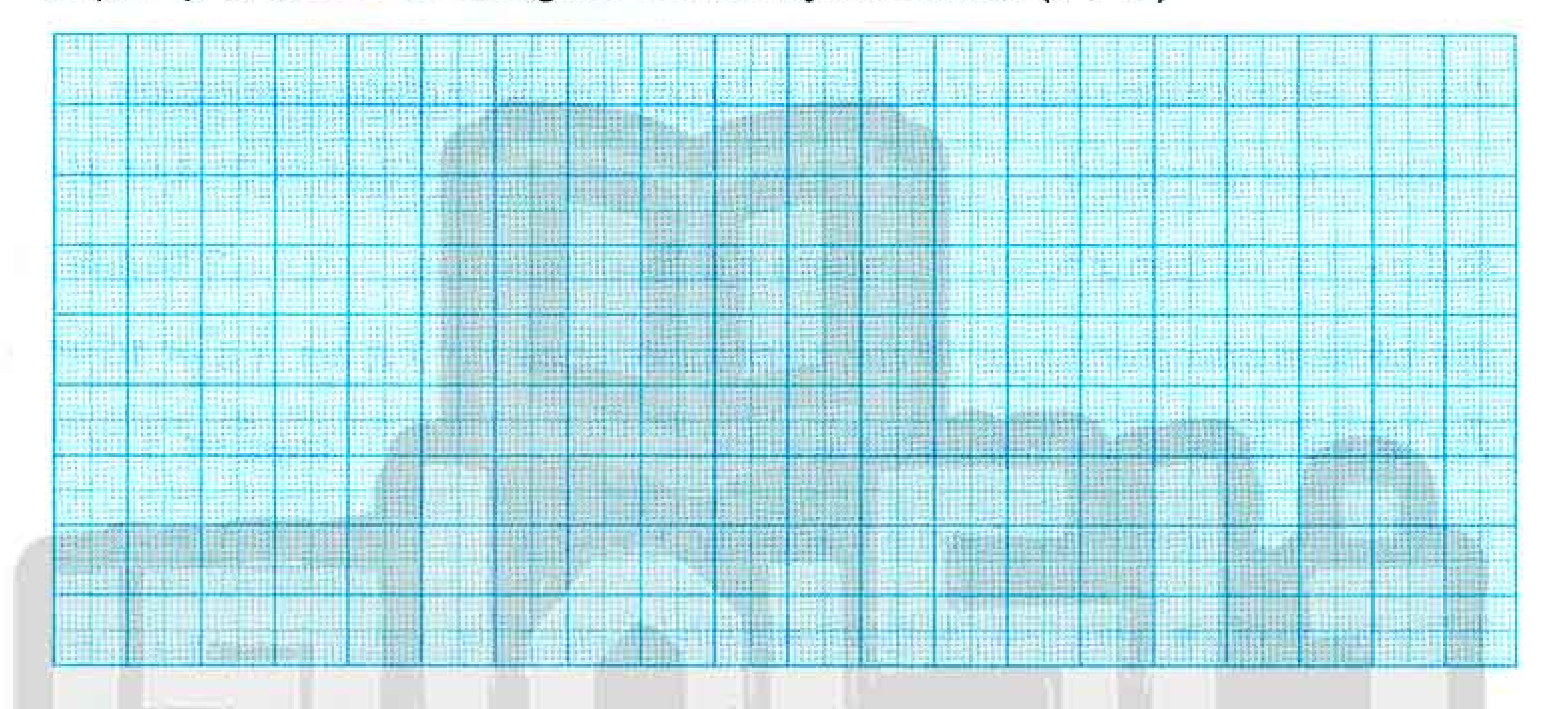
**21)** Simplify: $\frac{7^5 \times 7}{7^4}$ (Show the steps.)

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**22)** In the Cartesian coordinate plane, draw $\Delta$ ABC where A (1 , 1), B (4 , 1) and C (4 , 4), then find the image of $\Delta$ ABC by translation (1 , –2)

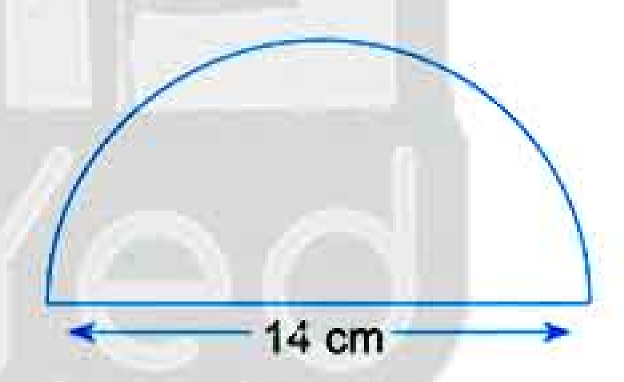


**23)** Find the area of the given figure. $\left(\pi \simeq \frac{22}{7}\right)$

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**24)** Find the solution set of each of the following:

a) $2x + 9 = 13$ $(x \in \mathbb{Z})$

b) $x - 1 < 2$ $(x \in \mathbb{N})$

**25)** The following table shows the percentage of production of a factory of home electric appliances.

| Kinds of appliances | Washing machine | Heater | Oven | Mixer |
|---|---|---|---|---|
| Percentage | 25% | 25% | 20% | 30% |

Represent these data by circular sectors.





## 8 Giza - Orman Private School

### 1 Choose the correct answer:

1) $\mathbb{Z} - \mathbb{N} =$ .............. ($\mathbb{Z}^+$ or $\mathbb{Z}^-$ or $\mathbb{Z}$ or $\mathbb{N}$)

2) $(-1)^8$ .............. $(-1)^9$ (> or < or = or ≤)

3) The area of the square = side length × ..............

(side length or diagonal or height or width)

4) If the length of the radius of a circle is 10 cm, then its surface area equals ........... $cm^2$.

Given that ($\pi$ = 3.14) (3.14 or 31.4 or 314 or 3140)

5) If $x - 2 = -4$, then $x =$ .............. where $x \in \mathbb{Z}$ (2 or 4 or –2 or – 4)

6) A circle of diameter length 10 cm, its circumference = ....... $\pi$ cm. ( 5 or 10 or 15 or 25)

7) The probability of the impossible event = .............. (zero or 1 or 0.5 or 1.2)

8) The number which satisfies the inequality: $x > -2$ is .............. (–1 or –2 or –3 or –4)

9)The image of the point ( –3 , 4) by translation ( x , y – 4) is ........

( (–3 , 0) or (–7 , 4) or (–3 , 8) or (–1 , 4) )

10) The smallest non-negative integer number is ........ (1 or 0 or –1 or 2)

11) If $x - 1 = 2$, then $x =$ .............. (3 or 13 or 17 or 11)

12) The equation: $3x^3 + 5 = 5$ is of the ........... degree. (first or second or third or fourth)

13) The height of a cuboid whose total area is 120 $cm^2$ and the dimensions of its base are 4 cm and 6 cm equals .............. cm. (3 or 6 or 6.3 or 3.6)

14) The probability of getting a number divisible by 3 in an experiment of rolling a fair die once is ..............  (0 or $\frac{1}{3}$ or $\frac{1}{2}$ or 1)

### 2 Complete each of the following:

15) The perimeter of the rectangle = ..............

16) $\mathbb{Z}^+ \cap \mathbb{Z}^- =$ ..............

17) The probability of the sure event = ..............

18) The additive identity element in $\mathbb{Z}$ is ...............

19) The lateral area of a cube = the area of one face × .........

20) The equation: $5x^2 - 3 = 17$ is of the .............. degree.

## 3 *Answer the following questions:*

21) **Find** the result of: $\frac{(-2)^7 \times (-2)^5}{(-2)^9}$

22) **Find** the solution set of the equation:

$2x - 3 = -9$, where $x \in \mathbb{Z}$

23) **Find** the solution set of the inequality:

$2x - 1 \leq 5$, where $x \in \mathbb{N}$, then represent the solution set on the number line.

24) A circle, its circumference is 88 cm, **calculate** the area of its surface where $\left(\pi \simeq \frac{22}{7}\right)$.

25) A cuboid whose total area is 132 cm$^2$ and its lateral area is 112 cm$^2$. **Calculate** the area of its base.

26) The following table shows the percentages of production of chickens on four farms within one month:

| Farms | First | Second | Third | Fourth |
|---|---|---|---|---|
| Percentages of production | 15% | 30% | 20% | 35% |

**Represent these data by circular sectors.**

## 9 Alexandria - Mathematics Inspection

### 1 Complete the following:

1) If $x = |-8|$, then $x =$ ..........
2) If a dice is rolled once, then the probability of getting a number $\leq 5$ is ..............
3) 3 km = .............. metres.
4) The height of the cuboid whose lateral area is 150 $cm^2$ and the dimensions of its base are 6 cm and 9 cm is ............ cm.
5) If $2x = -6$, $x \in \mathbb{Z}$, then the set of solution is ..............
6) The surface area of the semi-circle is .............. $\pi$ $cm^2$.
7) The number which if it is added to its double, the result will be 9 is ............
8) The image of the point (2 , –1) by translation 3 units in the positive direction of x-axis is ............

### 2 Choose the correct answer:

9) $(3)^8 \div (-3)^5 =$ ............ $((-3)^3$ or $(3)^3$ or $(-3)$ or $3)$
10) If $\left|\frac{x}{3}\right| = 4$, then $x =$ ............ (12 or (–12) or –12 only or 12 only or others)
11) The solution set of inequality $2 \leq x < 3$, where $x \in \mathbb{N}$ is ............ ({5} or {2} or {2 , 1.5} or {2 , 3})
12) The ratio between the total area and lateral area of a cube = ............ (1 : 4 or 2 : 3 or 3 : 2 or 4 : 1)
13) $\frac{81}{3}$ .............. $\mathbb{Z}^+$ ($\in$ or $\notin$ or $\not\subset$ or $\subset$)
14) The solution set of the inequality $x < 0$ in $\mathbb{Z}$ is .................. ($\mathbb{Z}^+$ or $\mathbb{Z}^-$ or $\mathbb{N}$ or $\varnothing$)
15) If the probability of failure of a student is 0.23, then the probability of his success = .............. (1 or 0.23 or 0.77 or 7.7)
16) $36 \times 65 + 15 \times (-36) = 36\ (65$ .............. $15)$ (– or + or × or ÷)
17) If $\varnothing$ is the empty set, then P ($\varnothing$) = .................. (1 or 0 or 0.5 or $\varnothing$)
18) The circle whose diameter length is 14 cm, its area = ................. where $\left(\pi \simeq \frac{22}{7}\right)$ (44 $cm^2$ or 154 $cm^2$ or 154 cm or 44 cm)
19) The number which satisfies the equation: $x + 3 = -17$, where $x \in \mathbb{Z}$ is .............. . (15 or –5 or 5 or –20)
20) If A (– 4 , 4), B (1 , 4), then the length of $\overline{AB}$ = ........... units (–5 or 5 or 3 or –3)





## 3 Answer the following questions:

**21)** Find the solution set of the inequality $2x - 2 \leq 4$, where $x \in \mathbb{Z}$, then represent the solution set on the number line.

−5 −4 −3 −2 −1 0 1 2 3 4 5

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**22)** If a = −2, b = −3 , c = 0, then find the value of: $-(a + b)^{\circ}$.

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**23)** The total area of a cube is 468 $cm^2$, find:

**1)** The area of one face

**2)** The lateral area

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**24)** On the coordinate plane,

find and draw the image of $\overline{AB}$

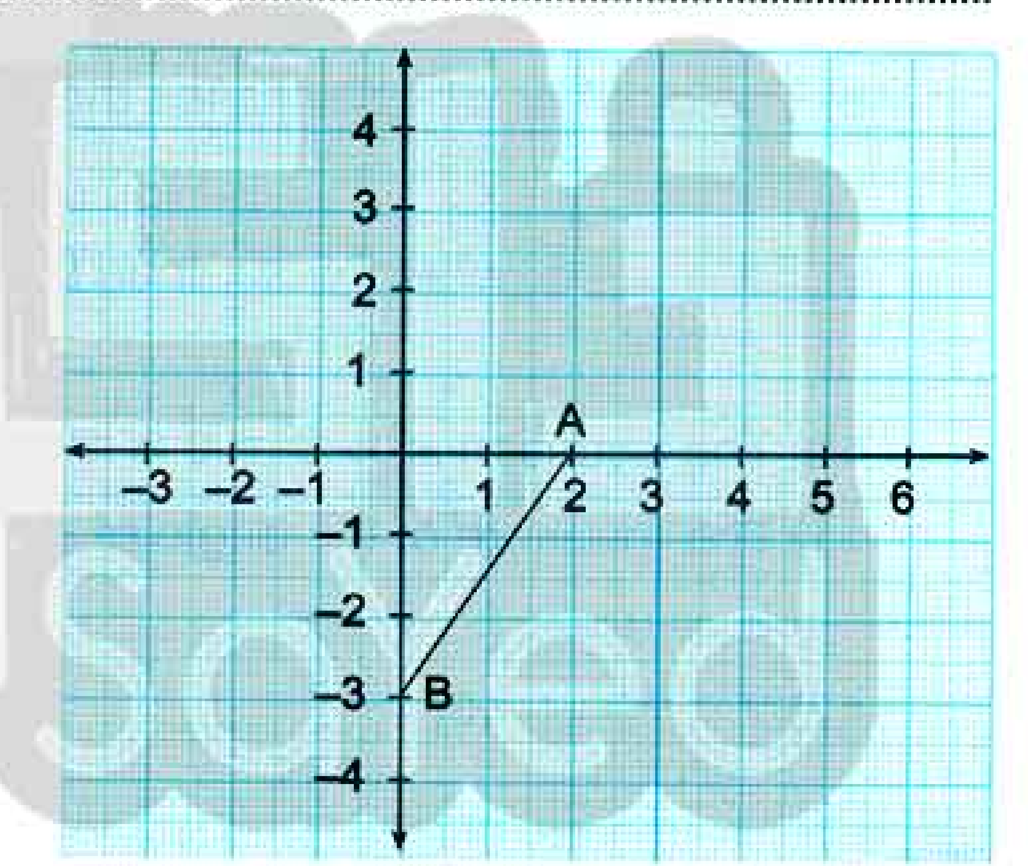
by translation (2 , −1)



A` = (......... , .........) , B` = (......... , .........)

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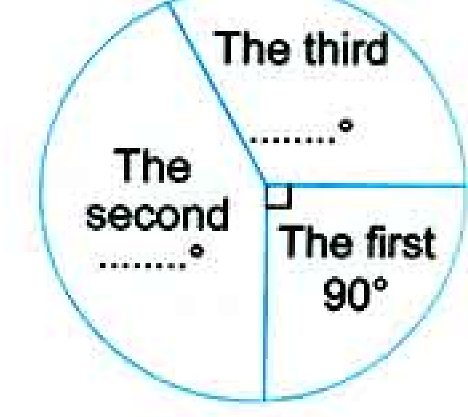
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**25)** The following table shows the percentage of production of three farms.

| Farms | The first | The second | The third |
|---|---|---|---|
| The percentage | %........ | %........ | 30% |

Complete the previous table and find the measures of the central angles of the opposite circular sectors.








## 10 Alexandria - El-Montazah Educational Zone

### 1 Choose the correct answer:

1) $(-1)^7 + (-1)^4 =$ ………… (zero or 1 or –1 or 11)

2) The image of the point (2 , –3) by translation ($x$ – 1 , y) is …………. ((1 , –3) or (2 , –1) or (2 , – 4) or (–1, –3))

3) 0………… $\mathbb{Z}$. ($\in$ or $\notin$ or $\subset$ or $\not\subset$)

4) The symbolic expression for "$x$ is less than or equal to 2" is …………. ($x > 2$ or $x < 2$ or $x \leq 2$ or $x = 2$)

5) If a regular die is tossed once, then the probability of the appearance of the number 4 = …………… . (zero or $\frac{4}{6}$ or $\frac{1}{6}$ or 4)

6) The area of the circle whose radius length is 7 cm = ……………… $cm^2$. (7 π or 14 π or 42 π or 49 π)

7) The neutral element of addition in $\mathbb{Z}$ is ………………. (1 or 0 or –1 or 2)

8) The number which satisfies the inequality $4 > x > -2$ of the following is …………… (4 or –4 or –1 or –2)

9) If $x + 2 = 5$, where $\in \mathbb{Z}^-$, then the solution set of the equation is ……………… . ($\varnothing$ or {3} or {–3} or 0)

10) The equation $x^2 + 3^2 = 9$ is of the ………… degree. (second or third or fourth or fifth)

11) The measure of the angle of a circular sector whose area is $\frac{1}{4}$ the area of the circle is ………… (360° or 180° or 270° or 90°)

12) 2 ………… |–13| (> or = or ≥ or <)

### 2 Complete the following:

13) The circumference of a circle = ………… × π

14) The result of 5 + [(3 –1) + 2] is …………

15) $\frac{4^4 \times 4^3}{4^6}$ = ……………

16) If $x - 3 = 12$, then $x$ = ……………, where $x \in \mathbb{Z}$

17) If the perimeter of one face of a cube is 40 cm, then is lateral area = ………… $cm^2$

18) When tossing a coin once, then the probability of getting a head = ……………

19) The set of integers $\mathbb{Z} = \mathbb{Z}^+ \cup$ ………… $\cup\ \mathbb{Z}^-$

20) The image of the point (1 , –2) by translation (………… , …………) is the point ( 0 , 0)








## 3 Answer the following questions:

21) Find in $\mathbb{Z}$ the solution set of the equation $2x - 1 = -3$

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22) If the lateral area of a cube is 36 $cm^2$, calculate its total area.

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23) Use the properties of multiplication in integers to calculate $4 \times (-33) \times 25$

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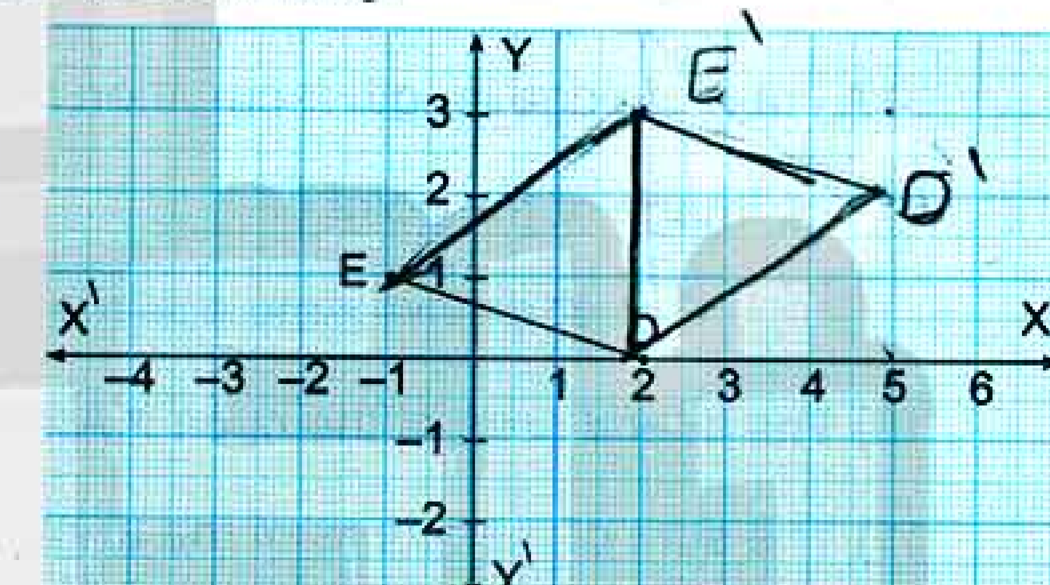
24) In the opposite coordinate plane, determine the following:

a) The image of $\overline{DE}$ where D (2 , 0) and E ( –1 , 1) by translation $(x + 3, y + 2)$.

D' (5,2)
E' (2,3)

b) What is the name of the shape DD` E`E?

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25) The following table shows the number of students participating in the school activities.

| Activities | Sports | Arts | Cultural |
|---|---|---|---|
| Percentage | 45% | 25% | 30% |

Represent the data above by the circular sectors.








## 11 Alexandria - East Educational Directorate

### 1 Choose the correct answer:

1) $\mathbb{Z} = \mathbb{N} \cup$ ………… ($\{0\}$ or $\varnothing$ or $\mathbb{Z}^+$ or $\mathbb{Z}$)

2) $\{0\}$ ………… $\mathbb{Z}$ ($\in$ or $\notin$ or $\subset$ or $\not\subset$)

3) If $x \in \{2, 5, -3\} \cap \{-5, -2, -3\}$, then $x =$………… ($-5$ or $-3$ or $-2$ or $2$)

4) $(9)^2$ ………… $(-3)^4$ ($>$ or $<$ or $=$ or $\geq$)

5) $(-7)$ ………… $(-|-5|)$ ($>$ or $<$ or $=$ or $\geq$)

6) The solution set of the equation: $x - 2 = 3$ in $\mathbb{Z}$ is ………………… ($5$ or $1$ or $\{5\}$ or $\{3\}$)

7) The number which satisfies the inequality $x + 4 > 2$ is …………… ($-1$ or $-2$ or $-3$ or $-4$)

8) A cube of edge length 6 cm; then its lateral area = ……. $cm^2$ (216 or 180 or 144 or 108)

9) The image of the point (……… , ……… ) by translation $(x - 3, y + 4)$ is $(-5, -3)$.

((−8 , 15) or (−2 , 7) or (−8 , 7) or (−2 , −7))

10) The lateral area of the cube = Area of one face × ………… (2 or 4 or 6 or height)

11) The sum of measures of the angles of the sectors around the centre of the circle = ………… (100° or 150° or 180° or 360°)

12) If $\varnothing$ is empty set; then P ($\varnothing$) = ………… (0 or 2 or 1 or 0.5)

### 2 Complete the following:

13) $|-5| + |7| =$ ……………

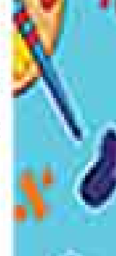
14) $5 \times (-3 + 7) = 5 \times (-3) + 5 \times$ ……………

15) In $\mathbb{N}$ : $x + 4 < 7$, then S.S. = ……………

In the opposite coordinate plane:

16) A ( ……………, ……………, )

17) The length of $\overline{AC}$ = ……………units.







18) If the lateral area of a cube is 100 $cm^2$, then its total area = ............... $cm^2$

19) If the perimeter of the base of a cuboid is 10 cm, its height is 4 cm,

then its lateral area = ............ $cm^2$

20) When tossing a die once, then the probability of getting the number 5 = ............

## 3 Answer the following questions:

21) **Arrange** the following numbers in ascending order: –9 , 17 , |–9| , –15 , 16

The order is ............ , ............ , ............ , ............ and ............

22) **Find** the result in the simplest form by using the basic laws of repeated multiplication:

$\frac{(-5)^3 \times (-5)^2}{(-5)^4}$

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23) A circle its diameter is 7 cm, **calculate** its surface area, where $\pi \simeq \frac{22}{7}$.

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## 12 Menofia - Official Language Schools

### 1 Choose the correct answer:

1) If $3x = 27$, then $x =$ ………… (3 or 9 or 12 or 24)

2) The image of the point (3 , – 4) by translation (2 , –1) is …………
((1 , –3) or (5 , –5) or (6 , 4) or (–1, 3))

3) $(-2)^2$ ………… $(3)^{zero}$ ($<$ or $>$ or $=$ or $\leq$)

4) If a die is tossed once, then the probability of getting a prime number = …………
(0.2 or 0.5 or 0 or 1)

5) $\mathbb{Z}^+ \cup \{0\} =$ …………… . ($\mathbb{N}$ or $\mathbb{Z}^-$ or $\mathbb{Z}^+$ or $\mathbb{Z}$)

6) The ratio between the lateral area: the total area of the cube = …………………
(1 : 2 or 1 : 3 or 2 : 3 or 3 : 1)

7) A cuboid with square base, its lateral area = 200 $cm^2$, and its height = 5 cm, then the side length of its base = …………… cm (5 or 10 or 15 or 20)

8) $\{\frac{3}{9-4}\}$ …………… $\mathbb{Z}$ ($\in$ or $\notin$ or $\subset$ or $\not\subset$)

9) If A = S, then P(A) = ……………… (0 or 1 or 0.5 or 0.3)

10) The measure of the central angle of a quarter of a circle is ………………
(60° or 90° or 180° or 360°)

11) The number of lines of symmetry of a square = ………… (0 or 1 or 2 or 4)

12) The number which verifies the inequality $2x + 1 < -1$ is ………… (4 or –2 or 0 or –1)

### 2 Complete the following:

13) The number which if added to its twice, the result will be 9 is ……………

14) $3 + |-3| =$ ……………

15) The degree of the equation: $x^2 - 6 = 3$ is ……………

16) The greatest non-positive integer number is ……………

17) The sum of measures of the interior angles of a triangle = …………

18) The solution set of the equation: $x - 2 \leq 1 \in \mathbb{N}$ is ……………

19) The additive inverse of $(-5)^2$ is …………

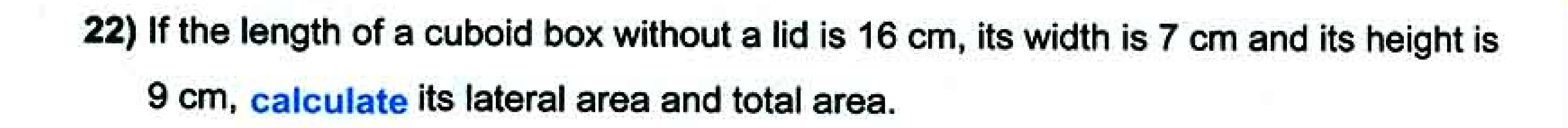
20) $\mathbb{Z}^+ \cap \mathbb{Z}^- =$ …………

## 3 Answer the following questions:

**21)** Find the value of $\frac{2^4 \times (-2)^7}{(-2)^5 \times (-2)^2}$ (Show your steps.)

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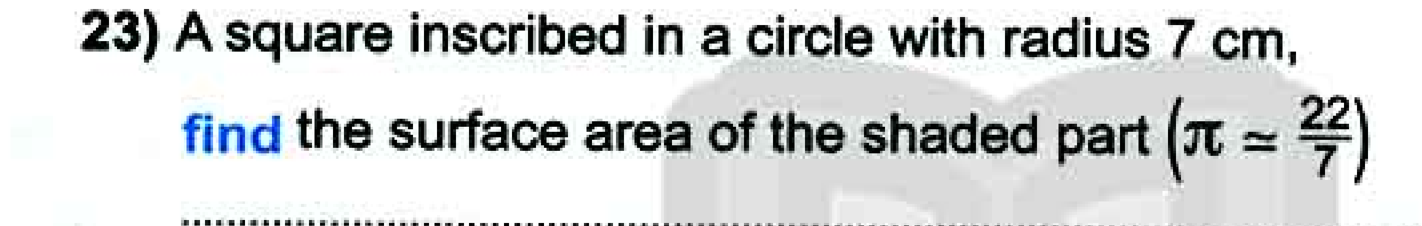
**22)** If the length of a cuboid box without a lid is 16 cm, its width is 7 cm and its height is 9 cm, calculate its lateral area and total area.

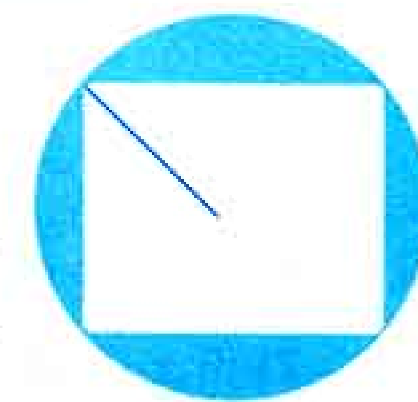
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**23)** A square inscribed in a circle with radius 7 cm,

find the surface area of the shaded part $\left(\pi \simeq \frac{22}{7}\right)$





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**24)** Find the solution set of the following, where $x \in \mathbb{Z}$.

a) $x + 8 = 19$

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b) $1 - 2x > 5$

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**25)** The following table shows the percentages of students who participated in school activities.

| Activities | Sports | Social | Arts |
|---|---|---|---|
| Percentages | 40% | 35% | 25% |

Represent these data by circular sectors.





## 13 Gharbia - Directorate of Education

### 1 Choose the correct answer:

1) $\mathbb{Z} - \mathbb{N} =$ ………… ($\mathbb{Z}^+$ or $\{0\}$ or $\mathbb{Z}^-$ or 0)

2) The equation $2x^3 = 4$ is of the ………… degree. ($1^{st}$ or $2^{nd}$ or $3^{rd}$ or $4^{th}$)

3) The image of the point A (– 4 , 3) by translation (–1 , – 4) is …………. ((–5 , 7) or (–5 , –1) or (–7 , 3) or (–3 , –1))

4) Two consecutive natural numbers, the smaller one is $x$, then the greater is …………… . ($2x$ or $x + 1$ or $2x + 1$ or $x - 1$)

5) $(3)^0 + (-3)^0 =$ ………………… (6 or 0 or 1 or 2)

6) A circle of diameter 8 cm, its area = ………………… $cm^2$ ($9\pi$ or $8\pi$ or $16\pi$ or $64\pi$)

7) If: $x \in \mathbb{N}$, then the S.S. of the inequality $-x > 3$ is …………. ($\{4 , 5 , ……\}$ or $\{3\}$ or $\{-4 , -5 , -6 ……\}$ or $\varnothing$)

8) A basket contains cards numbered from 1 to 20. If a card is drawn randomly, then the probability that the number written on it is divisible by 6 = ………………… ($\frac{3}{20}$ or $\frac{4}{20}$ or $\frac{5}{20}$ or $\frac{6}{20}$)

9) The additive inverse of (–5) is …………. (–10 or $\frac{1}{-5}$ or $|-5|$ or 0)

10) The probability of success of a student is 70%, then the probability of his failure is ……… (0.7 or 0.07 or 0.3 or 0.03)

11) The area of one face of the cube = ………… its total area. ($\frac{1}{2}$ or $\frac{1}{8}$ or $\frac{1}{6}$ or $\frac{1}{4}$)

12) The S.S. of the inequality $-2x < 0$ in $\mathbb{Z}$ is …………. ($\mathbb{N}$ or $\mathbb{Z}$ or $\varnothing$ or $\mathbb{Z}^+$)

### 2 Complete the following:

13) The lateral area of a cube = …………… × ……………

14) If five times of a number equals 60, then the number is …………….

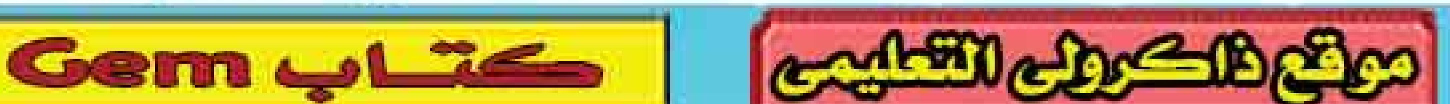
15) The image of the point (–1 , 2) by translation (2 , –2) is …………….

16) A circle, its circumference is 62.8 cm, then its area = …………… $cm^2$, where ($\pi = 3.14$)

17) $|-1| \times (-4) =$ ………….

18) The lateral area of a cuboid with base in the shape of a square with side length 8 cm and height 5 cm = …………… $cm^2$





19) $(-5)^2 \times (5)^3 = 5^{......}$

20) If the sum of edge lengths of a cube is 24 cm, then its lateral area = ............... $cm^2$

## 3 Answer the following questions:

21) Find the value of: $\frac{(8)^3 \times (8)^5}{(-8)^8}$

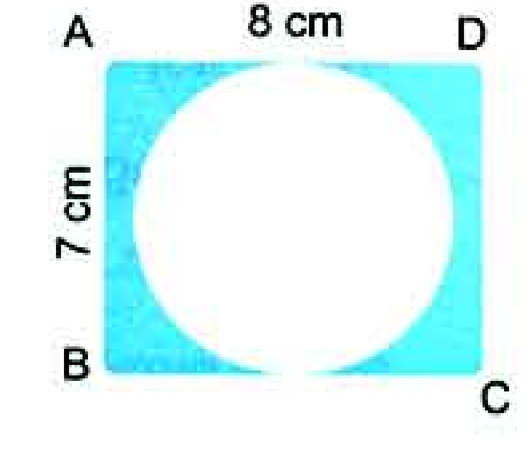
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22) In the opposite figure: If ABCD is a rectangle, whose length = 8 cm, and width = 7 cm, then calculate the area of the shaded part $\left(\pi \simeq \frac{22}{7}\right)$

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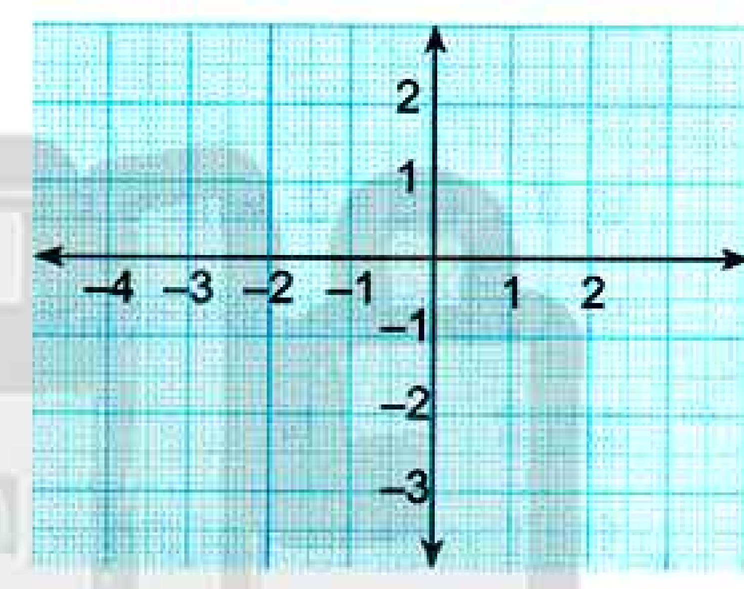
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23) Draw Δ ABC, where

A (1 , 1), B (–3 , –1)

and C (0 , –5)




24) In an experiment of throwing a fair die once and observing the number on the upper face, find: the probability of each of the following events:

1) Getting a number greater than 6 = ..........................................

2) Getting a prime number = ........................................................

25) The following table shows the percentages of the production of chickens on four farms within one month: Represent by pie chart.

| Farms | 1st | 2nd | 3rd | 4th |
|---|---|---|---|---|
| Percentage | 10% | 35% | 30% | 25% |





## 14 Kafr El-Sheikh - Kafr El-Sheikh Educational Directorate

### 1 Choose the correct answer from those given:

1) The additive identity element in $\mathbb{Z}$ is ........... (1 or –1 or 0 or 10)

2) When tossing a coin once, the probability of getting a head = ....... (Zero or 2 or 1 or 0.5)

3) ........... represents an inequality. ($x > 7 - 5$ or $3x + 2 = 11$ or $2x = 24$ or $\frac{x}{5} = 4$)

4) $-|-45| =$ ............ (45 or – 45 or |45| or |– 45|)

5) The image of the point (–1,2) by translation of magnitude 3 units in the positive direction of $x$-axis is ........... . ((–3, 0) or (2 , 2) or (–2 , 2) or (–1 , 3))

6) The number which satisfies the inequality: $2x + 1 \leq -1$ ........... (4 or 2 or 0 or –1)

7) If the total surface area of the cube is 726 $cm^2$, then its lateral surface area = ........... $cm^2$ (484 or 121 or 242 or 181.5)

8) If $x + 6 = 2$, where $x \in \mathbb{Z}$, then $x =$ ............ (4 or – 4 or 12 or –12)

9) If S is the sample space of a random experiment, then P(S) = .......... (zero or 2 or 1 or 0.8)

10) $\mathbb{Z}^+$ ........... N ($\subset$ or $\not\subset$ or $\in$ or $\notin$)

11) The degree of the equation $x^3 - 4x^2 = 0$ is .............. (first or second or third or fourth)

12) The total surface area of the cube = area of one face × ........... (12 or 4 or 3.14 or 6)

---

### 2 Complete each of the following:

13) ............... is neither positive nor negative.

14) The surface area of the circle = $\pi$ × ..............

15) The perimeter of the base of a cube is 24 cm, then its total area is .............. $cm^2$.

16) If $\{2 , x\} \cup \{-4 , 0 , 4\} = \{0 , 2 , -2 , -4 , 4\}$, then $x =$ ...........

17) A ball was selected without looking from a box that contains 8 white balls and 12 red balls, then the probability of selecting a white ball = ..............

18) The image of the point ( 8 , –10) by translation ( –3 , 4) is ..............

19) If $\frac{x}{5} = 4$ , then $x =$...............

20) The lateral surface area of the cuboid = perimeter of the base × ..............

## 3 Answer the following:

21) Use the distributive property to find the value of:

$63 \times 85 + 63 \times 15$

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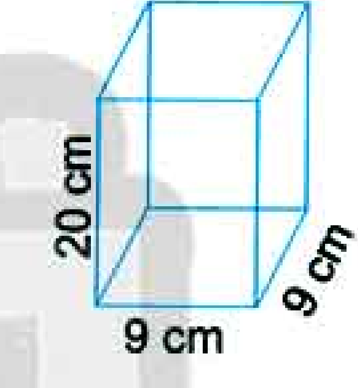
22) Find the solution set of the inequality $3x + 2 \leq 11$ in $\mathbb{Z}$ :

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23) A cuboid shaped box with a square base its side length is 9 cm and its height is 20 cm. Calculate its lateral area and its total area.




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24) Nahid is a clerk in an institution, she contributes with her husband by her salary as shown in the following table:.

| House rent | Food | Savings |
|---|---|---|
| 25% | 50% | 25% |

Represent these data by circular sectors.

25) A circle of diameter length 12 cm. Calculate its surface area. ($\pi \simeq 3.14$)

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## 15 Damietta - Official Language Schools

### 1 Choose the correct answer:

1) $\mathbb{Z} \cap \mathbb{N} =$ ………… ($\mathbb{Z}$ or $\mathbb{Z}^+$ or {0} or $\mathbb{N}$)

2) The equation: $x^3 + 4 = 5$ is of the ………… degree.
(first or second or third or fourth)

3) A circle, its radius is 4 cm, then its area =………… $\pi$ $cm^2$ (4 or 8 or 12 or 16)

4) The image of the point (–3 , 5) by translation ($x$ + 1, y – 2) is …………
( (– 4 , 3) or (–2, 3) or (–2 , –3) or (2 , 3) )

5) If a fair die is tossed once, then the probability of getting an odd number = …………… .
$\left(0 \text{ or } 1 \text{ or } \frac{1}{3} \text{ or } \frac{1}{2}\right)$

6) |– 4| – |4| ………………… (zero or 1 or 8 or –8)

7) All the following numbers satisfy the inequality $x > -3$ except …………
(zero or – 4 or –1 or 2)

8) The sum of edge lengths of a cube is 96 cm, then its lateral area = ………… $cm^2$
(8 or 64 or 256 or 384)

9) A circular sector represents $\frac{1}{3}$ of a circle, then the measure of its central angle = ……… °
(90 or 120 or 180 or 270)

10) If $3x = -9$, then: $x \in$ ………… ($\mathbb{N}$ or $\mathbb{Z}^+$ or $\varnothing$ or $\mathbb{Z}^-$)

11) $(-1)^8 + (-1)^9 + (-1)^{zero} =$ ………… (zero or –1 or 1 or 2)

12) The solution set of the inequality: $2 \le x < 3$ where $x \in \mathbb{N}$ is …………
({zero} or {2} or {3} or {2 , 3})

### 2 Complete the following:

13) $\frac{(-2)^7 \times (-2)^5}{2^{10}} =$ ……………

14) If: $x - 3 = |-7|$, then $x =$ ……………

15) If: $x$ ( -3 , 2), y (–3 , –4), then the length of $\overline{xy}$ = …………… units.

16) The height of a cuboid whose lateral area is 160 $cm^2$ and dimensions of its base are 7 cm and 3 cm = ………… cm.

17) A box contains 5 white balls, 3 blue balls and 8 red balls, all of them are symmetric, one ball is drawn from the box at random, then the probability that the drawn ball is red = …………

18) The multiplicative identity element in $\mathbb{Z}$ is ..............

19) The image of the point (–1 , 2) by translation of magnitude of 3 units in the positive direction of Y-axis is ..............

20) The surface area of the circle = ..............

## 3 Answer the following:

21) Find the solution set of inequality: $3x - 2 \geq 4$, where $x \in \mathbb{Z}$.

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22) Use the properties of addition and subtraction in $\mathbb{Z}$.

Find: 115 + 390 + (–115) (Write the used property.)

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23) A cube of edge length 12 cm. Find the total area.

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24) A circle whose diameter is 14 cm, calculate its area $\left( \text{where } \pi \simeq \frac{22}{7} \right)$.

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25) The following table shows the rate of the score of 200 students in one school of Cairo Governorate.

| Rate | Excellent | Good | Pass | Weak |
|---|---|---|---|---|
| Percentage | 15% | 50% | 25% | 10% |

Represent these data by circular sector.

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## 16 Sharkia - Sharkia Educational Directorate

### 1 Choose the correct answer:

1) $(-1)^{105} + (-1)^{20} =$ ………… (2 or 1 or –1 or zero)

2) If $x + 2 = |-5|$, then $x =$ ………… (–7 or 7 or 3 or –3)

3) If $x \in \{2, -3\} \cap \{5, -3\}$, then $x =$ ………… (–2 or –1 or 3 or –3)

4) If a fair die is tossed once, then the probability of the appearance of the number 5 = …………
(zero or $\frac{1}{6}$ or $\frac{5}{6}$ or 1)

5) $3^2 + 3^2 + 3^2 =$ …………… . ($3^6$ or $9^2$ or $3^3$ or $9^6$)

6) If $2x = -4$, $x \in \mathbb{Z}$, then the set of solution is ………………
({2} or {–2} or {4} or {– 4})

7) The image of the point (– 4 , 3) by translation (–1 , – 4) is ……………
( (–5 , 7) or (–5 , –1) or (–7 , 3) or (–3 , –1) )

8) $\mathbb{Z}^+ \cap \mathbb{Z}^- =$ …………… (zero or 1 or –1 or ∅)

9) The sum of the measures of all angles accumulative at the centre of a circle equals ……………
(90° or 108° or 180° or 360°)

10) The number which satisfies the inequality $x > -2$ is ……………… (–1 or –2 or –3 or –4)

11) If $x = |-2|$, y = –3, then $x$ y = ………… (5 or –5 or 6 or –6)

12) The total area of the cube with 3 cm edge length = ………… $cm^2$ (12 or 27 or 36 or 54)

---

### 2 Complete the following:

13) $(-5) \times [7 + (-5)] =$ …………… (in the simplest form)

14) The degree of the equation: $3x^2 + 4x - 1 = 0$ is ……………

15) A circle of diameter length 8 cm, then its area = …………… $\pi$ $cm^2$.

16) $7^0 + (-7)^0 =$ ……………

17) The additive inverse of $(-8)^0$ is ………… .

18) The greatest negative integer is ……………

19) At throwing a fair die and observing the upper face, then the probability of getting a number greater than 6 equals ……………

20) $\frac{a^m}{a^n} = a^{....}$ (where m , n $\in \mathbb{Z}^+$, m ≥ n)

## 3 Answer the following:

**21)** Find the result of: $\frac{(2)^5 \times (-2)^3}{(-2) \times (2)^4}$

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**22)** A cuboid, its length is 6 cm, its width is 4 cm and its height is 8 cm, find:

**1)** The lateral area. **2)** The total area.

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**23) a)** Find the solution set of the inequality: $x + 3 < 5$ (where $x \in \mathbb{Z}$).

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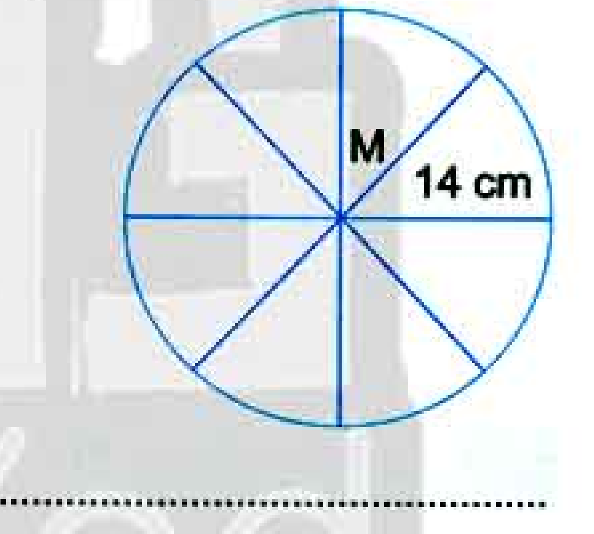
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**b)** Find the solution set of the equation: $2x + 1 = -9$ in $\mathbb{Z}$.

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**24)** In the opposite figure:




M is a circle of radius length 14 cm is divided into 8 equal circular sectors. Find:

**1)** The surface area of the circle M.

**2)** The area of one circular sector. $\left(\pi \simeq \frac{22}{7}\right)$

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**25)** The following table shows the percentage of the production of a factory of electric sets (4 kinds):

| Kinds of the sets | TV | Washing machine | Refrigerator | Cooker |
|---|---|---|---|---|
| Amount of the production | 35% | 25% | 15% | 25% |

Represent these data by pie charts.

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## 17 Port Said - Mathematics Inspection

### 1 Choose the correct answer:

1) The circumference of a circle = $\pi \times$ ............ ($r$ or $r^2$ or $2r$ or 3.14)

2) If $-2x = 10$, then $x \in$ ............ ($\mathbb{N}$ or $\varnothing$ or $\mathbb{Z}^+$ or $\mathbb{Z}^-$)

3) The number which satisfies the inequality $x - 2 > 3$ is ............ (−1 or −2 or 6 or 4)

4) $(-1)^8 + (-1)^9 =$ ............ (zero or −1 or 1 or 2)

5) $|5 - 11|$ ............ $\mathbb{Z}$ ($\notin$ or $\in$ or $\subset$ or $\not\subset$)

6) $2^5 \times 2^2 =$ .................... ($2^7$ or $2^4$ or $2^3$ or 1)

7) When tossing a die, the probability of getting a number on the upper face more than 6 = ........... ($\varnothing$ or zero or 1 or 2)

8) $|-3| =$ ............ (3 or −3 or $-|3|$ or $3 - 3$)

9) The total area of a cube = area of one face × ......... (4 or 5 or 6 or 8)

10) The probability of impossible event = ............. ($\varnothing$ or zero or 1 or 2)

11) The image of the point (2 , 3) by translation $(x + 1, y + 2)$ is ............ ((3 , 4) or (3 , 5) or (4 , 3) or (5 , 3))

12) If $x + 6 = 2$, $x \in \mathbb{Z}$, then $x =$ ............. (4 or $|-4|$ or −4 or $|4|$)

---

### 2 Complete the following:

13) $3 + |-3| =$ ...............

14) The perimeter of the base of a cuboid is 10 cm and its height is 4 cm, then its lateral area = ...............

15) The probability of the sure event = ...............

16) The sum of measures of all accumulated angles of the sectors at the centre of a circle = ................

17) The area of the circle = ............. $\times \pi$.

18) If the total area of a cube is 150 $cm^2$, then the length of its edge is ............... cm.

19) $\mathbb{Z}^+ \cup \{0\} =$ ...............

20) If $3x = 9$, then $x =$ ...............

## 3 Answer the following:

**21)** Find the result of $(4 \times 3^2 \times 3^2) - 7 \times 3$

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**22)** In the coordinate plane, locate the points A (0 , 1), B (4 , 3), C (4 ,7), then find:

**1)** The length of $\overline{BC}$ = .......... units

**2)** The image of Δ ABC by translation (0 , −4)

**23)** Find the solution set of the inequality $x - 2 \geq 3$, where $x \in \mathbb{Z}$, then represent it on the number line.

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**24)** A cuboid-shaped box with a square base, its length is 10 cm and its height is 7 cm. Calculate the lateral area.

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**25)** The following table shows the percentage of the production of a factory of house electric sets.

| Kinds of sets | Washing machine | Heater | Oven | Mixer |
|---|---|---|---|---|
| Percentage | 30% | 15% | 40% | 15% |

Represent these data by circular sectors.

## 18 Ismailia - Directorate of Education

### 1 Choose the correct answer:

1) $\mathbb{Z} - \mathbb{N}$ = ............... ($\mathbb{Z}^+$ or $\mathbb{Z}^-$ or zero or $\mathbb{N}$)

2) The probability of the certain event = ............... (zero or 1 or 5 or $\frac{1}{2}$)

3) The image of the point (3 , 5) by translation (2 , –1) is ........ ( (5 , 6) or (5 , 4) or (1 , 4) or (1 , 6) )

4) The sum of the measures of all the central angles of the sectors around the centre of the circle is ............ (90° or 80° or 270° or 360°)

5) If $x = |-2|$, y = –3, then $xy$ = ............... (–5 or 5 or –6 or 6)

6) The degree of the equation: $x^2 + 3 = 4$ is of the ....... degree. (first or second or third or fourth)

7) If the area of one face of a cube is 25 $cm^2$, then its lateral area = ............... $cm^2$ (150 or 20 or 25 or 100)

8) If $2x = 10$, $x \in \mathbb{N}$ , then $x$ = ............... (3 or 4 or 5 or 6)

9) $(3)^{zero} + (-3)^{zero}$ = ............... (6 or 0 or 1 or 2)

10) All the following numbers satisfy the inequality $x > -3$ except ............... (0 or – 4 or –1 or –2)

11) A circle, its diameter length is 6 cm, then its surface area = ............... $cm^2$ (3 π or 6 π or 9 π or 36 π)

12) The distance between two points A (–3 , 2) and B (2 , 2) = ............... length units (–5 or 2 or 5 or 1)

---

### 2 Complete the following:

13) The greatest negative integer number is ...............

14) The probability of getting a head when tossing a regular coin once is ...............

15) The ratio between the lateral area of a cube and its total area = .......... : ..........

16) If the sum of all edge lengths of a cube is 144 cm, then its total area = ............ $cm^2$

17) If $x - 2 = |-4|$, then $x$ = ............ .

18) The multiplicative identity element in $\mathbb{Z}$ is ............

19) If the base of a cuboid is in the shape of a square of side length 10 cm and its height is 7 cm, then its lateral surface area = ............... $cm^2$

20) A circle's circumference is 88 cm, then its area = ............... $cm^2$ $(\pi = \frac{22}{7})$

## 3 Answer the following:

**21) a)** Simplify: $\frac{7^5 \times 7^3}{7^6}$

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**b)** Use the properties to **find** the result: 116 + 190 + (–116)

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**22) Find** the solution set of the equation: $2x + 1 = -13$ in $\mathbb{Z}$.

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**23)** A cuboid's length is 6 cm, its width is 4 cm and its height is 8 cm. **Find** its lateral area and total area.

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**24)** A box contains 10 identical balls numbered from 1 to 10, one ball is drawn at random, write the sample space, then **find** the probability that the drawn ball has:

**1)** An odd number

**2)** A number divisible by 3

**3)** An even prime number

**4)** A number more than 6

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**25) Draw** $\Delta$ ABC on a squared lattice, where A (4 , 4), B (0 , 2) and C (6 , –2), then **find** its image by translation $(x - 4, y + 1)$.

## 19 Suez - South of Suez Directorate

### 1 Choose the correct answer:

1) When tossing a die once, the probability of getting a number on its upper face more than 6 = ............... (zero or $\frac{1}{6}$ or $\frac{1}{3}$ or $\varnothing$)

2) $\{0\}$ ............ $\mathbb{N}$ ($\subset$ or $\not\subset$ or $\in$ or $\notin$)

3) The equation $x^2 + 3 = 8$ is of the ............... degree. (first or second or third or fourth)

4) $|-5|$ ............... 5 ($\geq$ or $=$ or $>$ or $<$)

5) $(-1)^8 + (-1)^9 =$ ............... ($-1$ or zero or 1 or 2)

6) The sum of the measures of the accumulative angles at a point = ...............° (90 or 180 or 270 or 360)

7) If $2x = -6$, then $x \in$ ............... ($\mathbb{N}$ or $\varnothing$ or $\mathbb{Z}^+$ or $\mathbb{Z}$)

8) $\frac{1}{7^5} \times 7^5$ ............... 1 ($\geq$ or $=$ or $>$ or $<$)

9) The total area of the cube = area of one face X ............... (2 or 4 or 6 or 8)

10) AB = ............... units (8 or 7 or 5 or $-2$)

(number line from $-4$ to $6$, with A at $-2$ and B at $5$)

11) $5 \times (-4) =$ ......... . ($-20$ or 20 or 9 or $-1$)

12) The image of the point $(-3, 4)$ by translation $(x, y - 4)$ is ............... . ($(-3, 0)$ or $(-7, 4)$ or $(-3, 8)$ or $(-1, 4)$)

### 2 Complete the following:

13) $\mathbb{Z} - \mathbb{N} =$ ............

14) The circumference of the circle = ............ $\times \pi$

15) $\frac{2^2 \times 2^5}{2^2} =$ ...............

16) If $x + 6 = 2$, $x \in \mathbb{Z}$, then $x =$ ...............

17) The lateral area of the cuboid = perimeter of the base × ............... .

18) A cube of edge length 10 cm, then its lateral area = ............... .

**19)** ................ = (length + width) × 2

**20)** A box contains 5 white balls, 3 blue balls and 8 red balls all of them are symmetric. One ball is drawn from the box at random. Then the probability that the drawn ball is red = ................

## 3 Answer the following:

**21)** Use the properties of addition in $\mathbb{Z}$ to **find** the result of:

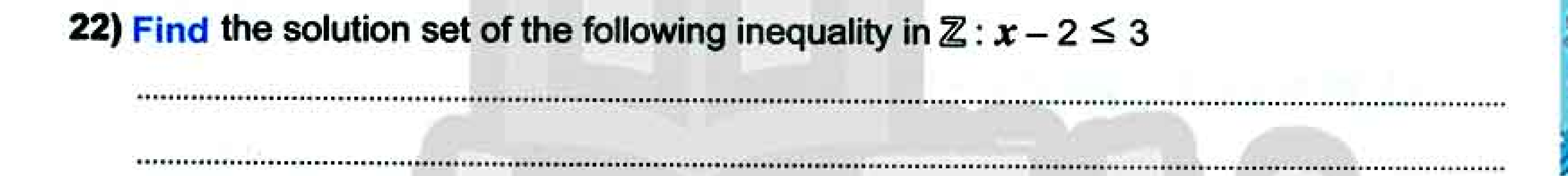
(−7) + 19 + 17 (state the property used in each step)

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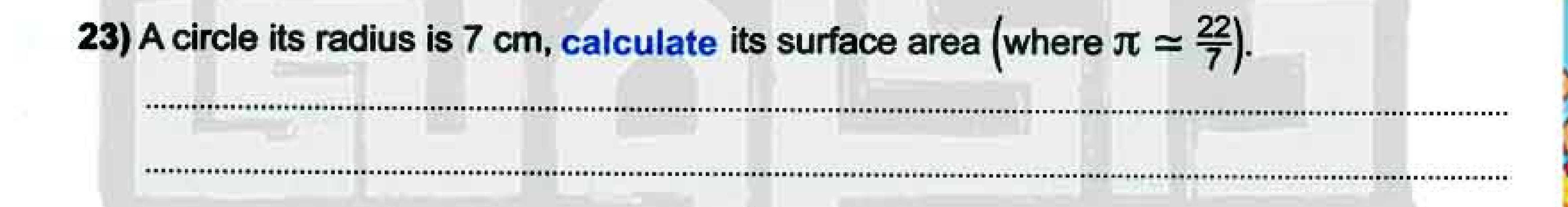
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**22)** **Find** the solution set of the following inequality in $\mathbb{Z}$ : $x - 2 \leq 3$



**23)** A circle its radius is 7 cm, **calculate** its surface area $\left(\text{where } \pi \simeq \frac{22}{7}\right)$.



**24)** A cuboid-shaped box with a square base, its length is 10 cm, its height is 7 cm. **Calculate** the lateral area.

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**25)** The following table shows the percentages of the production of a factory of house electrical sets.

| Kinds of sets | Washing machine | Heater | Oven | Mixer |
|---|---|---|---|---|
| Percentage | 25% | 15% | 40% | 20% |

**Represent these data using circular sectors.**





## 20 Fayoum - Directorate of Education

### 1 Choose the correct answer:

1) $\mathbb{N} \cup \mathbb{Z}^-$ ............ $(\mathbb{Z}^+$ or $\mathbb{Z}^-$ or $\mathbb{Z}$ or $\mathbb{N})$

2) All the following numbers satisfy the inequality $x > -3$ except ...... (0 or –2 or –1 or –4)

3) $(-1)^{11} + (-1)^{10} =$ ............ (zero or –1 or 1 or 2)

4) If $\frac{x-1}{2} = 3$, $x \in \mathbb{Z}$, then $x =$ ............ (5 or 7 or –7 or 6)

5) $|-7| + 3$ ............ $|-7 + 3|$ ($>$ or $=$ or $<$ or $\neq$)

6) The additive inverse of $(-3)^0$ is ............ (3 or –3 or 1 or –1)

7) If $x = 4$, $y = -3$, then the negative number of the following is ....................

($x + y$ or $x - y$ or $xy$ or $y^x$)

8) The image of the point ( 4 , –3) by translation ( $x$ – 3, Y + 3)

is ............ ((–7 , –6) or (1 , 0) or (0 , 1) or (7 , 6))

9) The probability of appearing a head when tossing a coin once = .............. (zero or 2 or 1 or $\frac{1}{2}$)

10) If the probability of success of a student in mathematics is 75%, then the probability of his failure = .............. (25 or 0.35 or 1 or $\frac{1}{4}$)

11) The ratio between the lateral surface area and the total surface area of a cube =..............

(2 : 3 or 3 : 4 or 6 : 4 or 1 : 2)

12) The total surface area of a cuboid = 100 $cm^2$ and the area of one base is 20 $cm^2$, then its lateral surface area = ............ $cm^2$. (40 or 60 or 80 or 140)

### 2 Complete the following:

13) The degree of the equation $x^3 + 3x^2 + x + 4 = 11$ is the .............. degree.

14) The solution set of the inequality $x \leq 0$ in $\mathbb{N}$ .............. .

15) The solution set of $x + 6 = 5$ in $\mathbb{N}$ = .............. .

16) If the perimeter of one face of a cube is 20 cm, then its total surface area = ......... $cm^2$

17) On the coordinates plane if the point A represents (–2 , 4) and the point B represents (5 , 4), then the length of $\overline{AB}$ = ........... units.

18) A cuboid its lateral area is 120 $cm^2$, its length is 5 cm and its width is 4 cm, then its height = ............ cm.

19) $\frac{\text{Circumference of the circle}}{2\pi}$ = ............... .

20) ............ ≤ the value of probability of any event ≤ ............

## 3 Answer the following:

21) **Find the result:** $\frac{(-5)^5 \times (-5)^4}{(-5)^7}$

22) **Find** the solution set of the following equation in $\mathbb{Z}$ : $3(x + 2) = 3$.

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23) **Calculate** the area of a circle with radius 10 cm. ($\pi \simeq 3.14$)

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24) A box in the shape of a cuboid, its length 10 cm, width 5 cm and height is 8 cm.

**Find** its lateral surface area and its total surface area.

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25) The following table shows the percentage of the favourite sports in a school.

| Types of the sports | Football | Basketball | Handball |
|---|---|---|---|
| Percentage of students numbers | 40% | 35% | 25% |

**Represent these data by the circular sectors.**

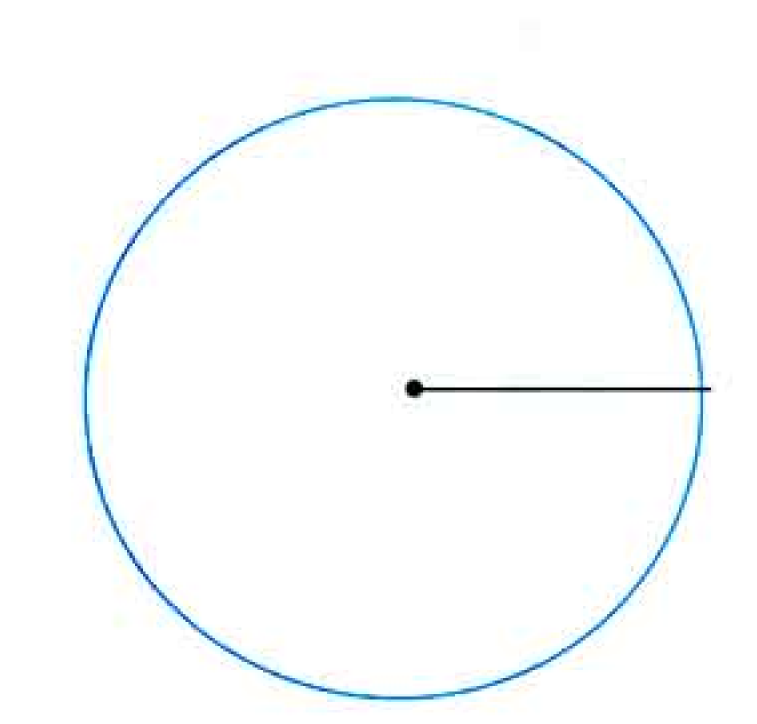
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## 21 Assuit – Directorate of Education

### 1 Choose the correct answer:

1) $|-9| + 3$ ............ $\mathbb{Z}$ ($\in$ or $\notin$ or $\subset$ or $\not\subset$)

2) ............ is the multiplicative identity (neutral) in $\mathbb{Z}$ (2 or 1 or Zero or 3)

3) The number which satisfies the inequality $x > -2$ is ............ (–1 or – 4 or –3 or –2)

4) A fair die is thrown once, then the probability of appearing the number greater than 6 = ............ (zero or 2 or 1 or 0.5)

5) If $2x + 9 = 5$ where $x \in \mathbb{Z}$, then $x =$ ............ . (–4 or 4 or 2 or –2)

6) When tossing a die once, then the probability of getting a number divisible by 3 equals = ............ (zero or $\frac{1}{3}$ or $\frac{1}{2}$ or 1)

7) $2^6 \times 2^2 =$ ............ ($2^3$ or $2^4$ or $2^8$ or $2^{12}$)

8) The lateral area of a cuboid is 130 $cm^2$ and the perimeter of its base is 26 cm, then the height = ............ cm (5 or 6 or 9 or 10)

9) $x$ is greater than or equal to 3, the symbolic expression of this situation is ............ ($x > 3$ or $x < 3$ or $x \leq 3$ or $x \geq 3$)

10) A circle its diameter length is 14 cm, then its surface area = ........ $cm^2$. (where $\pi \simeq \frac{22}{7}$) (49 or 21 or 154 or 7)

11) A cube of total area 150 $cm^2$ the length of the edge is ....... cm. ( 5 or 25 or 50 or 125 )

12) The solution set of equation $2x = 6$ in $\mathbb{N}$ is ............ ({3} or {–3} or {12} or {–12})

### 2 Complete the following:

13) $\mathbb{Z}^+ \cap \mathbb{Z}^- =$ ..............

14) If 3y = 6, then 5y = ............

15) A circle of diameter length 10 cm, then its area = .............. $\pi$ $cm^2$.

16) The image of the point (3 , 5) by translation (X + 2, y – 1) is ..............

17) If the perimeter of one face of a cube = 24 cm, then its total area = .............. $cm^2$.

18) The distance between two points A (–3 , 2) and B (2 , 2) = .............. length units.

19) The equation $x^2 + 3 = 4$ is of the .............. degree.

20) When tossing a die once, then probability of getting a number on the upper face more than 5 = ..............





## 3 Answer the following:

**21)** Find the solution set of the following inequality:

$3x - 2 < 7$ where $x \in \mathbb{N}$

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**22)** Use the properties of addition in $\mathbb{Z}$ to find the result of:

(–116) + 190 + 116 (State the property used in each step.)

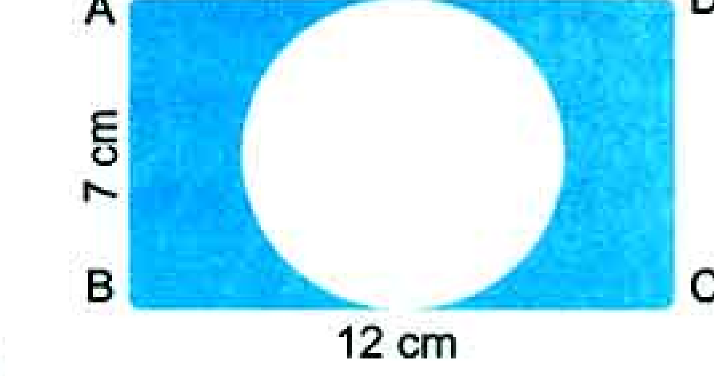
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**23)** In the opposite figure:

ABCD is a rectangle, its length 12 cm and its width 7 cm. A circle is drawn to touch the sides $\overline{AD}$ and $\overline{BC}$.

Calculate the area of the shaded part. $\left(\text{where } \pi \simeq \frac{22}{7}\right)$




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**24)** The following table shows the number of students participating in school activities.

| Activity | Culture | Sport | Social | Art |
|---|---|---|---|---|
| Percentage | 20% | 40% | 25% | 15% |

Represent these data by circular sectors.



**25)** On a coordinate plane, draw line segment $\overline{AB}$ where: A ( 2 , 3), B (–2 , 0), then find its image by translation ( $x$ + 3 , y – 2).

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## 22 Qena - Qeft Educational Directorate

### 1 Choose the correct answer:

1) $\mathbb{Z}^+ \cap \mathbb{Z}^- =$ .......... ($\mathbb{N}$ or $\varnothing$ or $\mathbb{Z}^+$ or $\mathbb{Z}^-$)

2) $19 - (-11) =$ .......... (8 or $-8$ or 30 or $-30$)

3) $2^3 + 2^2 =$.......... ($2^5$ or $4^5$ or 12 or 2)

4) If $x + 5 > 2$, then $x >$ .......... ($-2$ or $-3$ or $-5$ or $-7$)

5) If $2x = -6$, then $x \in$ .............. . ($\mathbb{N}$ or $\varnothing$ or $\mathbb{Z}^+$ or $\mathbb{Z}^-$)

6) The circumference of a circle = ................ $\times \pi$ (r or 2r or $r^2$ or r+2)

7) The number which satisfies the inequality $x - 2 > 3$ is .......... (3 or 4 or 5 or 6)

8) The edge length of a cube is 6 cm, then its lateral area = .......... $cm^2$ (144 or 216 or 24 or 36)

9) The image of the point $(-3 , 1)$ by translation $(3 , 2)$ is .......... ((0 , 1) or (0 , 3) or (3 , 0) or (1 , 0))

10) The sum of the measures of all angles accumulated at the centre of a circle equals ..........° (630 or 180 or 306 or 360)

11) If a fair die is thrown once, then the probability of appearing an even number equals .......... (zero or 2 or 1 or 0.5)

12) {0} .......... $\mathbb{N}$ ($\in$ or $\notin$ or $\subset$ or $\not\subset$)

### 2 Complete the following:

13) $5^7 \div (-5)^6 =$ ..............

14) If $4x + 3 = 23$, then $x =$ ..............

15) $\left|\frac{5-11}{3}\right| =$ ..............

16) $54 \times 117 - 54 \times 17 =$ ...... $\times$ (...... $-$ ......) (Use the distributive property.)

17) The circle whose diameter length is 14 cm, then the surface area = ...... $cm^2$ $\left(\pi \simeq \frac{22}{7}\right)$

18) The total area of a cube = the area of one face $\times$ ..............

19) The additive identity is .............., the multiplicative identity is ..............

20) The set of counting numbers .............. $\mathbb{N}$.

## 3 Answer the following questions:

21) Find the value of: $\frac{2^5 \times (-2)^3}{2^4 \times (-2)}$

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22) Find the S.S. of the inequality: $2x + 9 \leq 1$ and represent it on the number line if

1) $x \in \mathbb{N}$ 2) $x \in \mathbb{Z}$

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23) A cuboid, its length is 6 cm, its width is 4 cm and its height is 8 cm, find:

1) Its lateral area. 2) Its total area.

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24) A box contains 8 white balls, and 12 red balls where all balls are identical. If a ball is drawn randomly, calculate the probability of the following:

1) Drawing a white ball. 2) Drawing a red ball.

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25) Represent the following data by circular sectors.

| Farm | First | Second | Third |
| --- | --- | --- | --- |
| Percentage | 25% | 35% | 40% |

## 23 Sohag - City Private Schools

### 1 Choose the correct answer:

1) $\{15\}$ .......... $\mathbb{Z}^-$ ($\in$ or $\notin$ or $\subset$ or $\not\subset$)

2) The probability of getting an odd number when tossing a die once = ..........
(zero or 2 or 1 or $\frac{1}{2}$)

3) The number which satisfies the equation $x - 2 = 3$ is .......... (3 or 4 or 5 or 6)

4) $(-1)^{100} + (-1)^{101}$ = ..........
(zero or $-2$ or $-3$ or $-4$)

5) A cube of lateral area 36 $cm^2$, then its total area = .......... $cm^2$
(36 or 54 or 9 or 45)

6) The image of the point (4 , 6) by translation ($x$ + 1 y – 3) is ..........
((5 , 7) or (6 , 5) or (2 , 5) or (5 , 3))

7) The degree of the equation $3x^3 - 3 = 16$ is .......... (first or second or third or fourth)

8) If $3x$ = zero, then $x$ = .......... (3 or zero or 1 or $-3$)

9) $\mathbb{Z}^+ - \mathbb{Z}^-$ = .......... ($\mathbb{Z}$ or $\mathbb{N}$ or $\varnothing$ or $\mathbb{Z}^+$)

10) The multiplicative identity in $\mathbb{Z}$ is .......... (zero or 1 or $-1$ or 2)

11) If the diameter of a circle = 14 cm, then its area = .......... $cm^2$ ($\pi \simeq \frac{22}{7}$)
(144 or 451 or 154 or 44)

12) When tossing a die once, then the probability of getting number 3 = ..........
(zero or $\frac{3}{6}$ or $\frac{1}{2}$ or $\frac{1}{6}$)

### 2 Complete the following:

13) The probability of getting a tail when tossing a coin once = ..........

14) $(-3) + |-3|$ = ..........

15) $\frac{6^4 \times 6^5}{6^7}$ = ..........

16) If X = (–2 , 1), Y = (–2 , 5), then the length of $\overline{XY}$ = ..........

17) The area of the opposite figure = .......... ($\pi \simeq 3.14$)

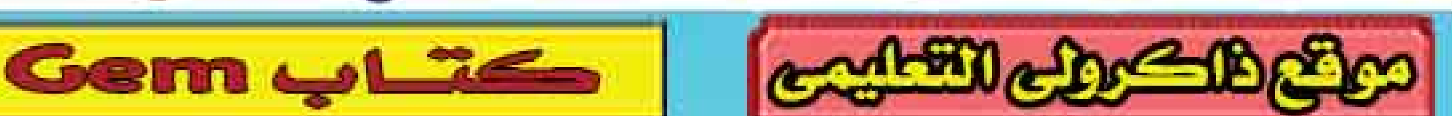
r =10 cm

18) The numbers lying between – 5 and 0 are ..........

19) $\mathbb{Z}^+ \cup \{0\}$ = ..........

20) The greatest negative integer is ..........



## 3 Answer the following:

21) **Find** the solution set of $3x + 1 > -5$ (where $x \in \mathbb{Z}$)

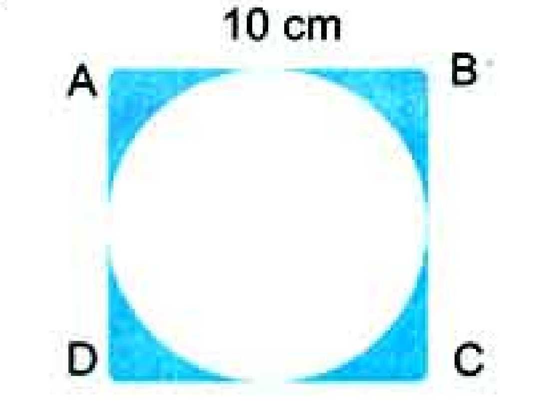
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22) In the opposite figure if ABCD is a square whose length = 10 cm,

**calculate** the area of the shaded part.




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23) A box without a lid is in the shape of a cuboid, its length is 16 cm, its width is 7 cm and its height is 19 cm. **Calculate** its lateral area.

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24) By using the distribution property, **find**: $(-11) \times [5 + (-3)]$

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25) The following table shows the percentage of the favourite sports for your class students:

| Favourite sports | Football | Volleyball | Basketball | Ping-pong |
|---|---|---|---|---|
| Percentage | 40% | 20% | 10% | 30% |

**Represent these data by circular sectors.**





## 24 Luxor - Al-Salam Language School

### 1 Choose the correct answer:

1) When tossing a coin once, then the probability of getting a head is ........... (0 or 2 or 1 or 0.5)

2) $(-19)^0 + (19)^0 =$ ........... (–1 or zero or 1 or 2)

3) The image of the point (3 , 5) by translation (2 , –1) is ....... ((2 , 6) or (5 , 4) or (1 , 4) or (1 , 6))

4) The equation: $x^2 + 3 = 4$ is of the ........... degree. (first or second or third or fourth)

5) The smallest positive integer is .................. (0 or 1 or –1 or 2)

6) The perimeter of the base of a cuboid is 10 cm, its height is 4 cm its lateral area = .................. $cm^2$. (30 or 40 or 50 or 60)

7) If $x + 2 = |-5|$, then $x =$ .................. (–7 or 7 or 3 or –3)

8) The distance between the point A and B = ........... (number line: –2 –1 0 1 2 3, A at –1, B at 1) (2 or 3 or 4 or 5)

9) –7 ........ 2 (> or < or = or ≤)

10) The solution set of the equation: $x + 2 = -5$ in $\mathbb{Z}$ is {...........} (–3 or –7 or –8 or –9)

11) The number which satisfies the inequality: $x < -1$ is ........... (0 or 1 or 3 or –2)

12) The sum of measures of all the central angles of the sectors about the centre of the circle = .................. °. (90 or 180 or 270 or 360)

### 2 Complete the following:

13) $\mathbb{Z}^+ \cap \mathbb{Z}^- =$ ..............

14) If the sum of edges of a cube is 48 cm, then its edge length = .............. cm

15) Probability of the impossible event = ..............

16) If $x + 2 > 5$, then $x >$ .............

17) The lateral area of a cuboid = perimeter of a base × ...........

18) The solution set of the equation: $x + 2 = 6$ in $\mathbb{N}$ = {..............}

19) The image of the point (.............. , ..............) by translation (3 , 1) is (5 , 3).

20) Area of the circle = ..............

## 3 Answer the following:

21) **Find** the result in the simplest form: $\frac{2^3 \times 2^4}{2^7}$

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22) **Find** the solution set of the following inequality: $2x + 1 \geq 5$ in $\mathbb{Z}$.

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23) A circle of diameter 14 cm, **calculate** its area. $\left(\pi \simeq \frac{22}{7}\right)$

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24) The following table represents the percentages of the production of three factories of washing machines:

| Factory | First | Second | Third |
|---|---|---|---|
| Percentage | 25% | 25% | 50% |

**Represent these data by pie charts.**

# Pre-exam Final Revision

## 1 Choose the correct answer:

1) $\mathbb{Z} - \mathbb{N} =$ .................. ($\mathbb{Z}^+$ or $\{0\}$ or $\mathbb{Z}^-$ or $0$)

2) An integer included between –2 and 3 is .................. . (–2 or –1 or 3 or –3)

3) A number which satisfies the inequality $x > -2$ is .................. . (–1 or – 4 or –3 or –2)

4) If $x = -2$ , y = 3, then $2xy$ = .................. (12 or 10 or –12 or 3)

5) $(-2)^3 >$ .................. ($(-2)^3$ or $3^2$ or $(-3)^3$ or $3^3$)

6) A circle, its diameter length is 8 cm, its area ≃ .................. $cm^2$. $\left(\pi \simeq \frac{22}{7}\right)$

(52 or 50 or 53 or 48)

7) If $A \subset \{2 , -5 , -3\} \cap \{5 , -2 , -3\}$, then A = .................. ($\{2\}$ or $\{-3\}$ or $\{-5\}$ or $\{5\}$)

8) $\mathbb{N} \cup \mathbb{Z}$ = .................. ($\mathbb{Z}$ or $\mathbb{N} - \{0\}$ or $\mathbb{Z}-$ or $\mathbb{Z}+$)

9) If $x + 3 = 8$, $x \in \mathbb{Z}^-$ , then the solution set = .................. ($\{-3\}$ or $\{5\}$ or $\{-5\}$ or $\varnothing$)

10) If $2x + 5 > 3$, $x \in \mathbb{Z}$ , then the solution set = .................. ($\mathbb{N}$ or $\mathbb{N} - \{0\}$ or $\mathbb{Z}^-$ or $\mathbb{Z}^+$)

11) The image of the point A (–4 , 3) by translation (–1 , –4) is ..................

((– 5 , –7) or (–5 , –1) or (–7 , 3) or (–3 , –1))

12) $(-19)^0 + (19)^0$ = .................. (–1 or 0 or 1 or 2)

13) $(-1)^{104} + (-1)^{103}$ = .................. (0 or –1 or 1 or 2)

14) $|-9| + 3 \div 2$ .................. $\mathbb{Z}$ ($\in$ or $\notin$ or $\subset$ or $\not\subset$)

15) If a dice is rolled once, then the probability of getting a number > 6 = ..................

($\varnothing$ or Zero or $\frac{1}{6}$ or $\frac{1}{3}$)

16) The measure of the angle of the sector of a quarter of a circle is .................. .

(30° or 45° or 60° or 90°)

**17)** $\mathbb{Z}^+ - \mathbb{Z}^- =$ .................. ($\varnothing$ *or* $\mathbb{N}$ *or* $\mathbb{N} - \{0\}$ *or* $\mathbb{Z}$)

**18)** If $2 \in \{3, x - 3\}$, then $x =$ .................. (zero *or* –5 *or* 5 *or* 3)

**19)** If the area of one face of a cube equals 8 $cm^2$, then its total area = .................. $cm^2$

(12 *or* 30 *or* 42 *or* 48)

**20)** If the lateral area of the cuboid is 120 $cm^2$, and the two dimensions of its base are 4 cm and 6 cm, then its height = .................. cm (6 *or* 8 *or* 10 *or* 12)

**21)** Complete the following pattern: –5 , –10 , –15 , –20 , ........ (25 *or* –30 *or* –25 *or* –30)

**22)** $(-1)^8$ .................. $(-1)^{13}$ (> *or* < *or* = *or* ≤)

**23)** The surface area of the circle whose diameter length is 20 cm = ........ $cm^2$ ($\pi \simeq 3.14$)

(3.14 *or* 31.4 *or* 314 *or* 3140)

**24)** The equation $3x^2 - x = 21$ is of the .......... degree. (fourth *or* third *or* second *or* first)

**25)** $(-2)^3 \times (-5)^3 =$ .................. ($(10)^0$ *or* 10 *or* $(10)^2$ *or* $(10)^3$)

**26)** If A (4 , 9) , B (4 , 5) , then the length of $\overline{AB}$ = .................. units. (3 *or* 4 *or* 5 *or* 6)

**27)** If A is an event in sample space S and P (A) = 0, then A is a/an .................. event.

(impossible *or* sure *or* possible *or* otherwise)

**28)** The multiplicative neutral element in $\mathbb{Z}$ is .................. (0 *or* 1 *or* –1 *or* –2)

## 2 *Complete the following:*

**1)** The lateral surface area of a cuboid = ..................

**2)** The random experiment is ..................

**3)** 9 (4 + (–3)) = 9 x .................. + .................. x .................. = ..................

**4)** The result of $\frac{(-7)^5 \times 7}{(-7)^3}$ = ..................

5) 2 , 6 , 10 , 14 , ............ in the same pattern and its rule is ..................

6) If the total area of a cube is 150 $cm^2$, then its edge length = ..................

7) $|-3| + |3|$ = ..................

8) The probability of an impossible event = ..................

9) The area of the circle whose circumference is 31.4 cm is .................. $cm^2$ ($\pi$ = 3.14)

10) The image of the point (3 , –2) by translation ($x$ – 2 , y + 5) is ..................

11) If the probability of the appearance of event A is $\frac{2}{3}$ , then the probability of non-appearance of event A = ..................

12) 3 × (–5) = (–5) × 3 is called .................. property.

13) The sum of measures of the accumulative angles at the centre of the circle is equal to ..................

14) If a = –1 , b = –3, then the value of 3 ab – 7 = ..................

15) The solution set of the inequality $x \geq -2$ , $x \in \mathbb{Z}$ is ..................

16) The area of a piece of wood in the shape of a circle of radius length 7 cm is ......... $cm^2$

17) On throwing a fair die once, then the probability of appearing an even prime number = .........

18) The measure of the angle of the circular sector whose area represents $\frac{1}{6}$ of the surface area of the circle = ............

19) $\frac{4^3 \times 4^5}{4^8}$ = ............

20) $-\frac{1}{4}$ , $-\frac{1}{8}$ , $-\frac{1}{16}$ , ....., ..... (in the same pattern)

21) The sample space of rolling a die once is ............

22) If A (–2 , 7) , B (–2 , 7), then the length at $\overline{AB}$ is ............ units.

23) A circle its circumference is 88 cm, then its radius = ............ cm. $\left(\pi \simeq \frac{22}{7}\right)$

**24)** If $6x = -42$, then $x =$ ............ $(x \in \mathbb{Z})$

**25)** $-|-3| + 4 + (-8) =$ ............

**26)** The smallest non-negative integer number is ............

**27)** $8 \times ((-1) + \text{......}) = 8 \times \text{......} + \text{......} \times 3$

---

**3** **Solve the following inequality in** $\mathbb{Z}$, $-1 < 2x + 3 \leq 5$, **and represent the solution on the number line**

---

**4** **Find the S.S. of:**

**a)** $2x - 3 \geq 5$ in $\mathbb{N}$

**b)** $5x - 3 = 2x + 3$ in $\mathbb{Z}$

---

**5** Niveen used a piece of a square cardboard of side length 80 cm and she used cut and paste paper tools to design a cuboid with 40 cm length, 20 cm width and 30 cm height.

**Show whether the piece of the cardboard is enough to design a cuboid or not.**

---

**6** **Determine** the following points A $(-3, 4)$, B $(1, 4)$ and C $(1, 2)$ on the coordinate plane, then **find**

**a)** AB = ............... , BC = ...............   **b)** The image of $\Delta$ ABC by translation $(0, -3)$.

---

**7** The sum of the edge lengths of a cube equals 108 cm, find its lateral area and its total area, **then find the ratio between them**

---

**8** **Draw** $\Delta$ ABC, where A $(1, 1)$, B $(-3, -1)$, C $(0, -5)$, **then determine graphically its image by translation $(5, 0)$.**




**9** If the area of a circle = 2826 $cm^2$, **find its circumference where** ($\pi$ = 3.14).

---

**10** The following table shows the percentage of the production of one factory for 4 kinds of the electric sets.

| Types of the sets | TV | Washing machine | Refrigerator | Cooker |
|---|---|---|---|---|
| Amount of the production | 30% | 25% | 15% | 30% |

**Represent these data by using the circular sectors.**

---

**11** The following table shows the number of hours that Nahed spends for revising different subjects weekly:

| Subjects | Arabic | English | Maths | Science | Social studies | Other subjects |
|---|---|---|---|---|---|---|
| Number of hours | 9 | 6 | 7 | 5 | 6 | 7 |

**Represent the previous data by using the circular sectors, then answer the following questions.**

**a)** What is the subject which takes the greatest number of hours for weekly revision?

**b)** What is the subject which takes the least number of hours for weekly revision?

**c)** What is your advice to Nahed?

---

**12** A box contains 5 white balls and 9 red balls. All balls are symmetrical. If a ball is selected randomly, **write the sample space, then calculate the following probabilities**:

**a)** Selecting a white ball.

**b)** Selecting a red ball.

**c)** Selecting a ball which is neither white nor red.









**13** In an experiment of forming a number which consists of two digits without repeating a digit using the set of numbers {1 , 2 , 3}. **Find:**

**a)** The probability of getting an odd prime number.

**b)** The probability of getting an even number.

---

**14** A box contains 10 cards numbered by the even numbers from (2 to 20). If one of the cards is selected randomly, **calculate the probability of**:

**a)** The event A : the appearance of multiples of number 1.

**b)** The event B : the appearance of an even number.

**c)** The event C : the appearance of a number that is divisible by 3.

---

**15** In an experiment of tossing a regular dice once and observing the number of dots on the upper face, **find the probability of**:

**a)** The event A, where A is the event of the appearance of a number less than 5.

**b)** The event B, where B is the event of the appearance of a number which satisfies the inequality B $\geq$ 3.

---

**16** In one of the "weight loss" centres, 10 ladies suffering from overweight were waiting to enter for meeting the specialised doctor. If the weights of 4 of them are between 100 and 110 kg and the weights of the others are between 110 and 120 kg, **find the following probabilities**:

**a)** The entrance of a lady whose weight is less than 110 kg.

**b)** The entrance of a lady whose weight is more than 110 kg.

**c)** The entrance of a lady whose weight is 90 kg.

---

**17** A box contains some cards numbered from 10 to 19. If one of the cards is selected randomly, **calculate**:

**a)** The probability of getting a prime number. 11, 13, 17, 19 $\frac{4}{9}$

**b)** The probability of getting an even number. $\frac{5}{9}$

**c)** The probability of getting a number divisible by 5 $\frac{2}{9}$

## Answers of Model Tests from the School Book

### Model Test 1

1. 1) 0 2) (–3 , 0) 3) ⊂ 4) 0

2. 1) ∈ 2) –4 3) 6 4) $\frac{8}{16} = \frac{1}{2}$

3. a) –17 b) $x \in \{5, 6, 7, ...\}$

4. a) Area of one face = 10 × 7 = 70 cm²

   The lateral surface = 70 × 4 =280 cm²

   b) The circumference = 2 π r = 88

   $\therefore 2 \times \frac{22}{7} \times r = 88 \Rightarrow r = 88 \times \frac{7}{44} = 14$ cm

   The area of the circle = $(14)^2 \times \frac{22}{7} = 616$ cm²

5. a) $3x + 9 = 3 \Rightarrow 3x = 3 - 9 = -6$ $\therefore x = -2$

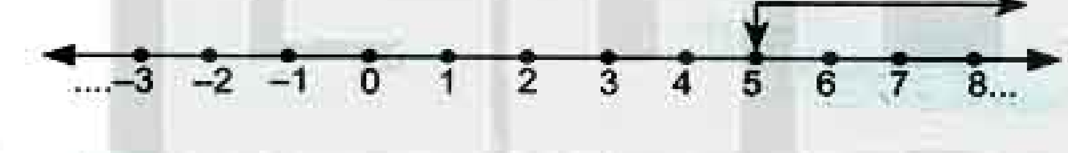
   b) **Left to the student.**

### Model Test 2

1. 1) $\mathbb{Z}^-$ 2) 2 r 3) $\frac{1}{6}$ 4) –1

2. 1) $\frac{2^8}{2^2} = 2^6$ 2) ⊂ 3) 5 4) $\frac{1}{3}$

3. 1) –32 2) {5 , 6 , 7 , 8 , .........}




4. a) $2x + 9 = 5$ $2x = 5 - 9$

   $x = -2$ Solution set = {–2}

   b) Area of the rectangle ABCD = L × W = 8 × 7

   = 56 cm²

   Area of the circle = $\pi r^2 = \frac{22}{7} \times \left(\frac{7}{2}\right)^2 = 38.5$ cm²

   Area of the shaded part = 56 – 38.5 = 17.5 cm²

5. **Left to the student.**

### Model 3

1. 1) 3 2) zero 3) 1 4) 40

2. 1) 27 2) r² 3) N 4) $\frac{1}{2}$

3. 1) ✓ 2) ✗ 3) ✗ 4) ✓

4. 1) 360° 2) ∈ 3) {0 , 1 , 2} 4) (4,4)

5. a) The total area = 6 × 4 × 4 = 96 cm²

   The lateral area = 4 × 4 × 4 = 64 cm²

   b) $\frac{2^3 \times 2^4}{2^5} = \frac{2^{3+4}}{2^5} = \frac{2^7}{2^5} = 2^{7-5} = 2^2 = 4$

## Answers of some School Examinations

### 1 Cairo – El-Sahel Educational Zone

1. 1) ∅ 2) $-(3)^2$ 3) second 4) $\frac{1}{6}$
   5) –24 6) 4 7) 25 8) 1
   9) (–2 , –7) 10) $2^5$ 11) 0.2 12) {4}

2. 13) 54 cm² 14) $\mathbb{Z}^- \cup \{0\}$
   15) (–1 , 2) 16) 18
   17) 360 18) 50 19) $x < -3$ 20) 10

3. 21) $3x - 7 = 11$ , $x \in \mathbb{Z}$

   $3x = 11 + 7 = 18$

   $\frac{3x}{3} = \frac{18}{3} \Longrightarrow x = 6$

   S.S. = {6}

   22) The area of a circle = $\pi r^2$

   $= \frac{22}{7} \times 7 \times 7 = 154$ cm²

   The area of each sector = 154 ÷ 7 = 22 cm²

   23) $x - 2 \le 3$ where $x \in N$

   $x \le 3 + 2 \Longrightarrow x \le 5$

   S.S. = {5 , 4 , 3 , 2 , 1 , 0}

   24) The side length of the cube = 28 ÷ 4 = 7 cm.

   a) L.S.A. = perimeter of base x height

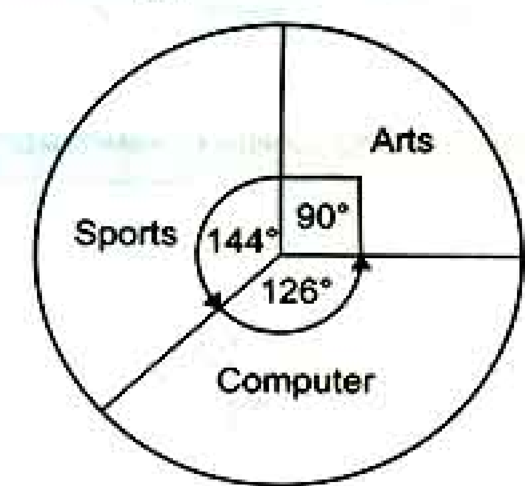
   = 28 × 7 = 196 cm²

   b) T.S.A. = 6 × 7 × 7 = 294 cm²

   25) The measure of the angle which represents arts = $\frac{25}{100} \times 360° = 90°$

   The measure of the angle which represents sports = $\frac{40}{100} \times 360° = 144°$

   The measure of the angle which represents computer = $\frac{35}{100} \times 360° = 126°$



## 2 Cairo - Helioplis Directorate - St. Joseph's School

1. 1) $\mathbb{N}$ 2) $3^2$ 3) $(-3, 0)$ 4) 120°
5) –1 6) > 7) $\frac{1}{6}$ 8) –1
9) 400 10) $(-1)^7$ 11) $\in$ 12) $2\pi r$

2. 13) height 14) –1 15) zero
16) 3 17) 6 18) commutative
19) $\{-1, 0, 1\}$ 20) $(-3, 0)$

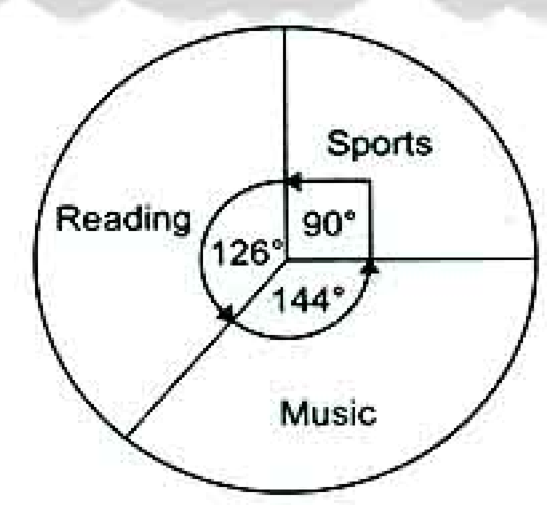
3. 21) $2x + 11 = 3 \Rightarrow 2x = 3 - 11$
Then $\frac{2x}{2} = \frac{-8}{2}$ so $x = -4$
The S.S. = $\{-4\}$

22) $37 \times 17 + 37 \times (-17)$
$= 37 \times [17 + (-17)] = 37 \times 0 = 0$

23) Area of carpet $= \pi r^2 = \frac{22}{7} \times (3.5)^2 = 38.5 \text{ m}^2$
The price of the carpet = 38.5 × 100
= 3850 pounds

24) The total area of the cuboid
= lateral area + area of two bases
$= (3 + 2) \times 2 \times 6 + 2 \times 3 \times 2$
$= 60 + 12 = 72 \text{ cm}^2$

25) The measure of the angle of the sector that represents sports $= \frac{25}{100} \times 360° = 90°$
The measure of the angle of the sector that represents reading $= \frac{35}{100} \times 360° = 126°$
The measure of the angle of the sector that represents music $= \frac{40}{100} \times 360° = 144°$




## 3 Cairo - Rod El-Farag Educational Zone

1. 1) $\notin$ 2) 5 3) 16 4) 9
5) zero 6) –3 7) 54 8) zero
9) 4 10) $9^2$ 11) third 12) 90°

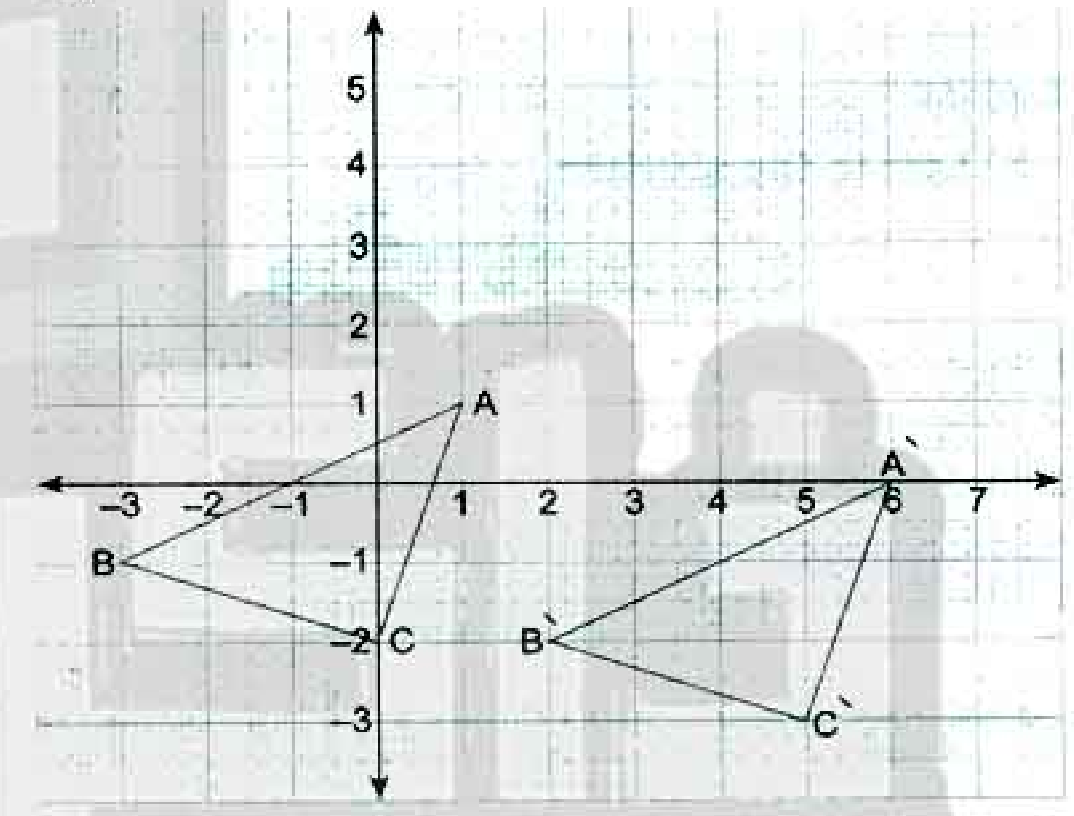
2. 13) $(0, 1)$ 14) $\varnothing$ 15) $\frac{1}{6}$ 16) height
17) $(-2)^2$ 18) 64 19) –8 20) 6

3. 21) $32 \times (117 - 17) = 32 \times 100 = 3200$

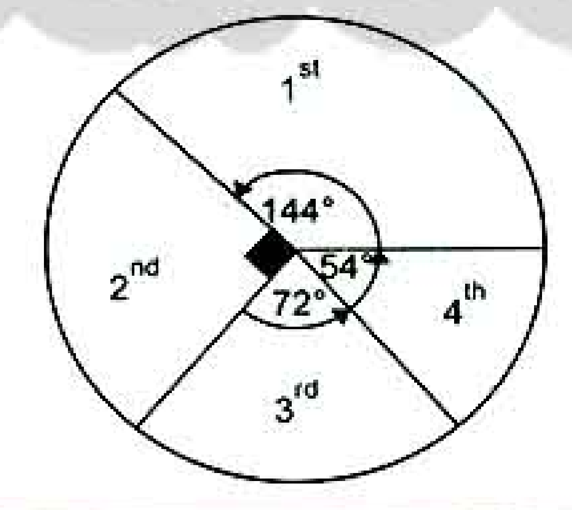
22) $2x - 2 \geq 4$ 	$2x \geq 4 + 2$
$2x \geq 6$ 	then $x \geq \frac{6}{2}$
$x \geq 3$
then the S.S. = {3 , 4 , 5 , ...........}

23) The lateral area = perimeter of base × height
= 10 × 4 × 6 = 240 cm.
the total area = 2 area of base + area lateral area
$2 \times 10 \times 10 + 240 = 440 \text{ cm}^2$

24)




25) $1^{st} = \frac{40}{100} \times 360 = 144°$ 	$2^{nd} = \frac{25}{100} \times 360 = 90°$
$3^{rd} = \frac{20}{100} \times 360 = 72°$ 	$4^{th} = \frac{15}{100} \times 360 = 54°$




## 4 Cairo - El Zeitoun Directorate - Special Republic School

1. 1) < 2) $\notin$ 3) 0 4) 1
5) $\{-2\}$ 6) –3 7) $\in$ 8) $(6, -3)$
9) 25 10) L. area = 10 × 4 = 40
11) 0.3 12) 0

2. 13) {0} 14) $Z^+$ 15) 14 cm 16) $2^4 = 16$
17) 10 cm 18) 5 19) 1 20) 54 $cm^2$

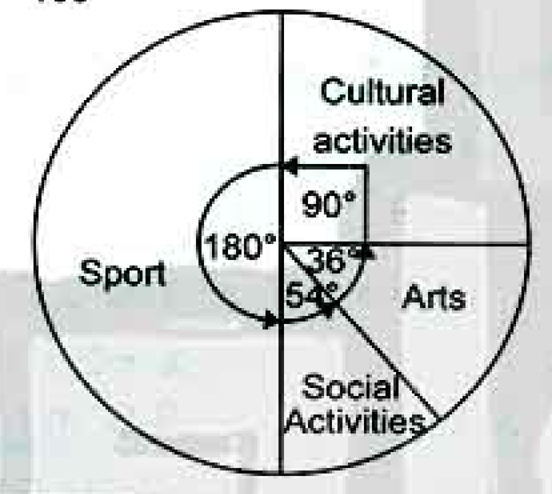
3. 21) $3 \times [(-2) + 5] = 3 \times 3 = 9$

22) $3x = -15$
$x = -5$ S.S. = $\varnothing$

23) Lateral area = base P × h = (12 × 4) × 12 = 576 $cm^2$
T.S. area = 576 + (2 × 12 × 12) = 864 $cm^2$

24) Shaded part = area of square – area of circle
$= (14 \times 14) - (\frac{22}{7} \times 7 \times 7)$
$196 - 154 = 42$ $cm^2$

25) Cultural activities = $\frac{25}{100} \times 360 = 90°$
Sport = $\frac{50}{100} \times 360 = 180°$
Social activities = $\frac{15}{100} \times 360 = 54°$
Arts = $\frac{10}{100} \times 360 = 36°$




## 5 Cairo - El-Marg Educational Directorate - El-Shams Language School

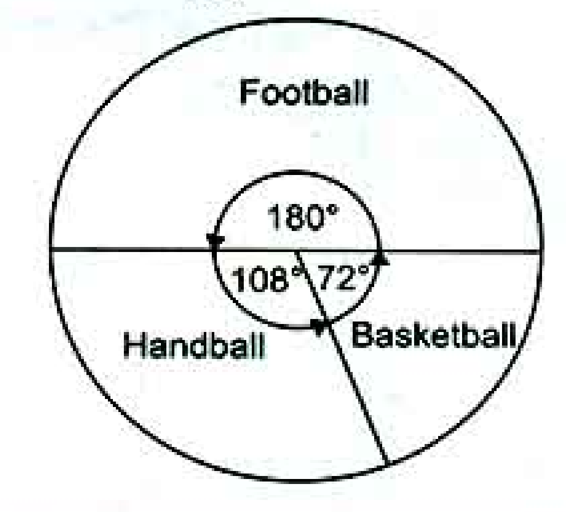
1. 1) 0.5 2) 54 3) $\varnothing$ 4) 30°
5) 1 6) $\frac{1}{2}$ 7) 6 8) 1
9) $\in$ 10) (–3 , 5) 11) 314 12) 20
13) $5^2$ 14) $\subset$

2. 15) commutative 16) 0 17) 5
18) 256 19) second 20) –2 21) 1
22) $\frac{2}{7}$

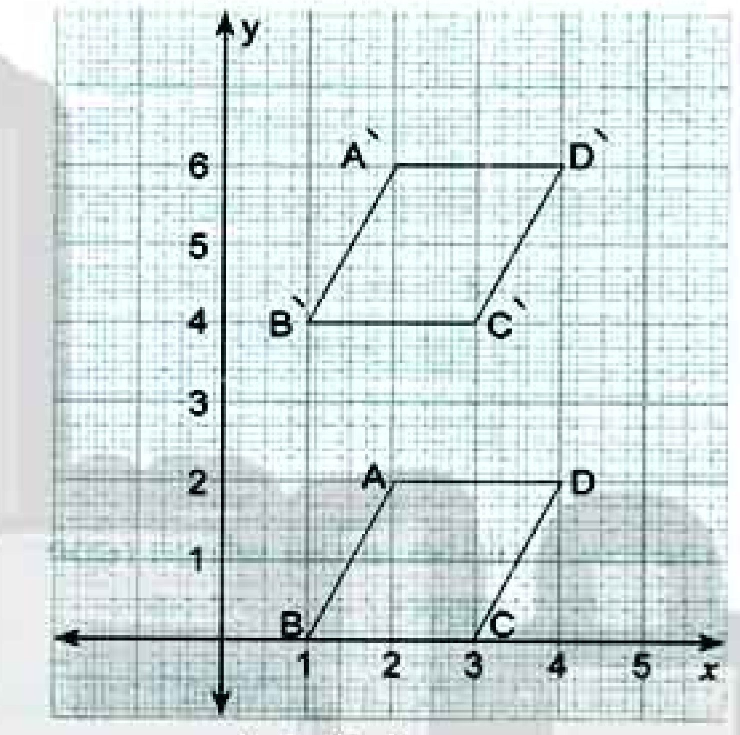
3. 23) a) {–5}
b) $3x \le 9$
$x \le 3$ {3 , 2 , 1 , 0 , –1, .........}

24) Lateral area = base perimeter × height
= 20 × 8 = 160 $cm^2$
Total S. area = 2 × base area + L. area
= (24 × 2) + 160
= 208 $cm^2$

25) Football = $\frac{50}{100} \times 360 = 180°$
Handball = $\frac{30}{100} \times 360 = 108°$
Basketball = $\frac{20}{100} \times 360 = 72°$




26)




The figure A`B`C`D` is the image of ABCD
ABCD is a parallelogram.

## 6 Giza - 6 October Directorate

1. 1) –1 2) $\not\in$ 3) 2 4) (–3 , 0)
5) Z 6) 216 7) $\frac{1}{6}$ 8) 314
9) 3 10) 14 11) 10 12) 180°

2. 13) zero 14) $\varnothing$ 15) 3200 16) 96
17) the centre 18) {3 , 2 , 1 , 0}
19) {–3} 20) 2(L + w) × h

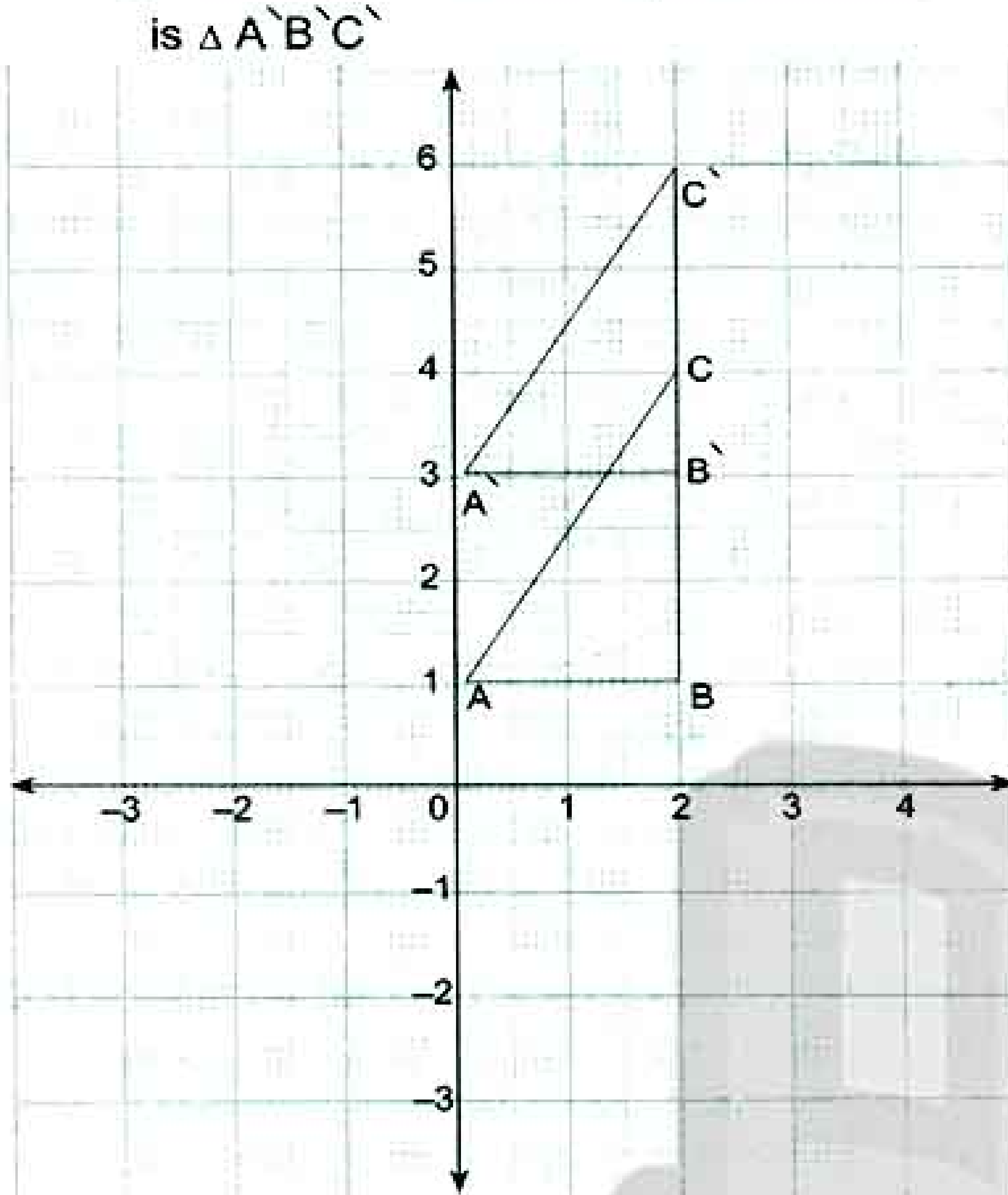
3. 21) a) $(-5) \times [2] = -10$ b) $7^{4+5-7} = 7^2 = 49$

22) $2x - 3 < 1$ $x \in N$
$2x < 1 + 3$ $\frac{2x}{2} < \frac{4}{2} \Longrightarrow x < 2$
S.S. = {0 , 1}
–2 –1 0 1 2 3 4 5

23) $x + 4 > 5$ $x \in Z$
$x > 5 - 4 \Longrightarrow x > 1$ S.S. = {2 , 3 , ..........}

24) a) The length of $\overline{BC}$ = 3 units length.

**b)** The image of $\triangle ABC$ by translation $(0, 2)$ is $\triangle A`B`C`$

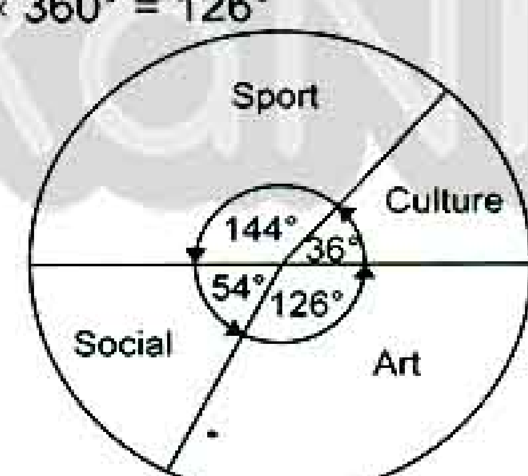


**25)** The measure of the angle which represents culture $= \frac{10}{100} \times 360° = 36°$

The measure of the angle which represents sport $= \frac{40}{100} \times 360° = 144°$

The measure of the angle which represents social $= \frac{15}{100} \times 360° = 54°$

The measure of the angle which represents art $= \frac{35}{100} \times 360° = 126°$




**7** Giza - Al-Haram Educational Area - Sorour Language School

**1. 1)** $\varnothing$ **2)** $-1$ **3)** $-2$ **4)** $3^{rd}$

**5)** $-4$ **6)** $(0, 0)$ **7)** 1 **8)** zero

**9)** $\frac{1}{2}$ **10)** 6 **11)** 120° **12)** 54

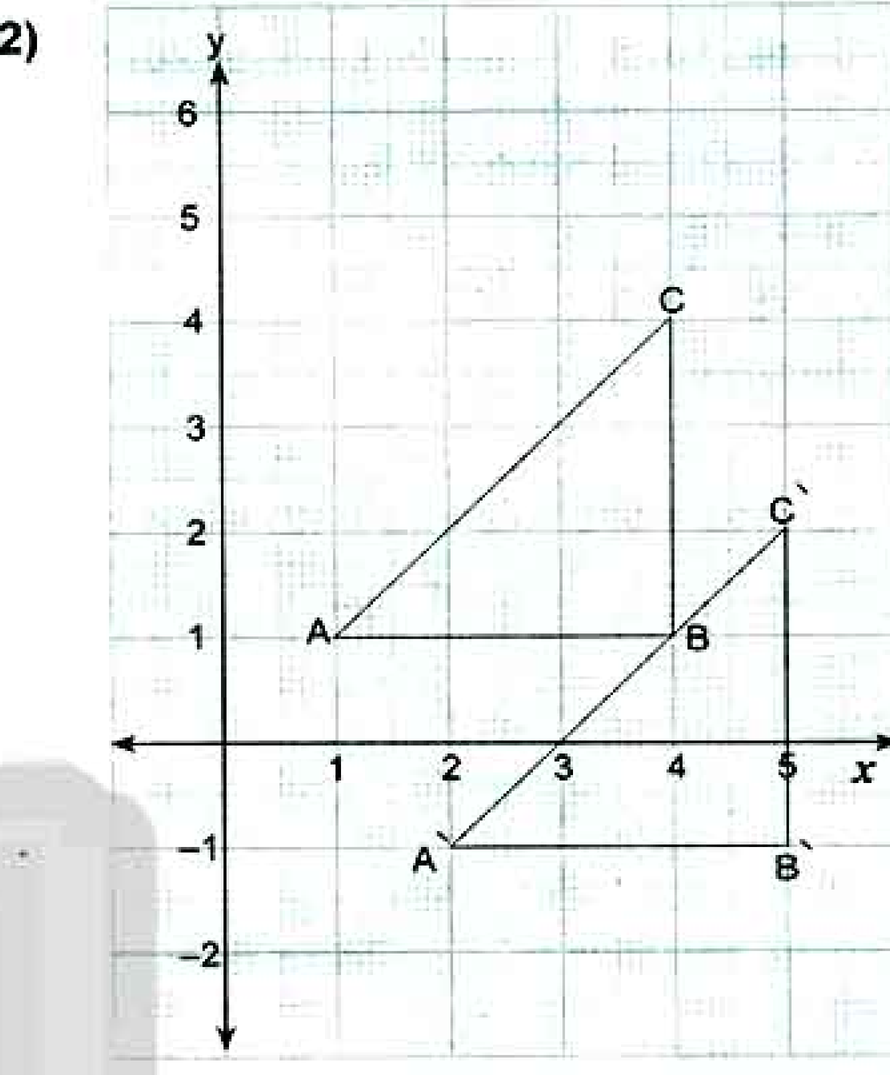
**2. 13)** 18 **14)** 7 **15)** 6

**16)** L.S.A. $= (3 + 4) \times 2 \times 5 = 70$ **17)** 7

**18)** zero **19)** 14 **20)** 4

**3. 21)** $7^{5+1-4} = 7^2 = 49$

**22)**



**23)** The area of the figure $= \frac{1}{2} \times \frac{22}{7} \times (7)^2 = 77 \text{ cm}^2$

**24)** $2x + 9 = 13$

**a)** $2x = 13 - 9$

$\frac{2x}{2} = \frac{4}{2}$ then $x = 2$ The S.S. $= \{2\}$

**b)** $x - 1 < 2$ $x < 2 + 1$

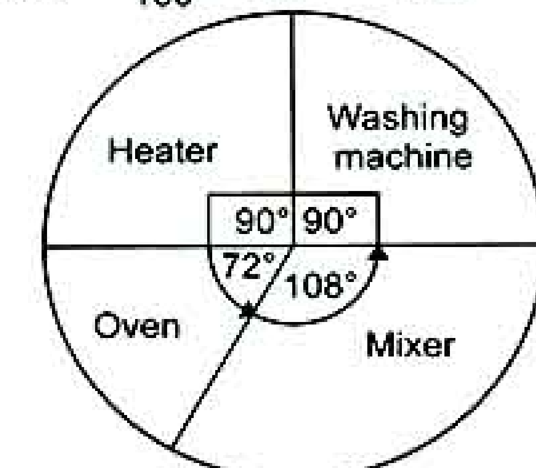
then $x < 3$ S.S. in N $= \{2, 1, 0\}$

**25)** The measure of the angle of the sector which represents washing machine $= \frac{25}{100} \times 360° = 90°$

The measure of the angle which represents the heater $= \frac{25}{100} \times 360° = 90°$

The measure of the angle which represents the oven $= \frac{20}{100} \times 360° = 72°$

The measure of the angle which represents the mixer $= \frac{30}{100} \times 360° = 108°$




**8** Giza - Orman Private School - Maths Supervision

**1. 1)** $\mathbb{Z}^-$ **2)** > **3)** The side length

**4)** 314 **5)** $-2$ **6)** 10 **7)** zero

**8)** $-1$ **9)** $(-3, 0)$ **10)** 0 **11)** 3

**12)** third **13)** 3.6 **14)** $\frac{1}{3}$

**2. 15)** $2 \times (L + W)$ **16)** $\varnothing$ **17)** 1
**18)** zero **19)** 4 **20)** second

**3. 21)** $(-2)^{7+5-9} = (-2)^3 = -8$

**22)** $2x - 3 = -9$

$2x = -9 + 3$ $\qquad \frac{2x}{2} = \frac{-6}{2}$ then $x = -3$

s.s. = {–3}

**23)** $2x - 1 \le 5$

$2x \le 5 + 1$, then $\qquad \frac{2x}{2} \le \frac{6}{2} \Rightarrow x \le 3$

The S.S. = {3 , 2 , 1 , 0}

**24)** The circumference = $2\pi r = 88$

Then $\frac{2 \times 22}{7} r = 88$

$r = \frac{88 \times 7}{2 \times 22} = 14$ cm

The area of the circle = $\pi r^2 = \frac{22}{7} \times (14)^2 = 616$ cm$^2$

**25)** The area of two bases = 132 – 112 = 20 cm$^2$

Then the area of base = $\frac{20}{2} = 10$ cm$^2$

**26)** The angle of sector of the first

$= \frac{15}{100} \times 360° = 54°$

The measure of the angle of sector of the second

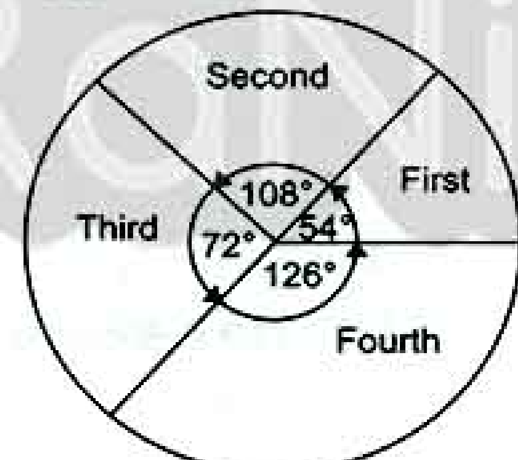
$= \frac{30}{100} \times 360° = 108°$

The measure of the angle of sector of the third

$= \frac{20}{100} \times 360° = 72°$

The measure of the angle of the fourth

$= \frac{35}{100} \times 360° = 126°$




**9** Alexandria - Educational Zone - Mathematics Inspection

**1. 1)** $x = 8$ **2)** $\frac{5}{6}$ **3)** 3000 **4)** 5
**5)** {–3} **6)** $\frac{r^2}{2}$ **7)** 3 **8)** (5 , –1)

**2. 9)** (–3)3 **10)** 12 or (–12) **11)** {2}
**12)** 3 : 2 **13)** $\in$ **14)** $\mathbb{Z}^-$ **15)** 0.77
**16)** – **17)** zero **18)** 154 cm$^2$ **19)** –20
**20)** 5

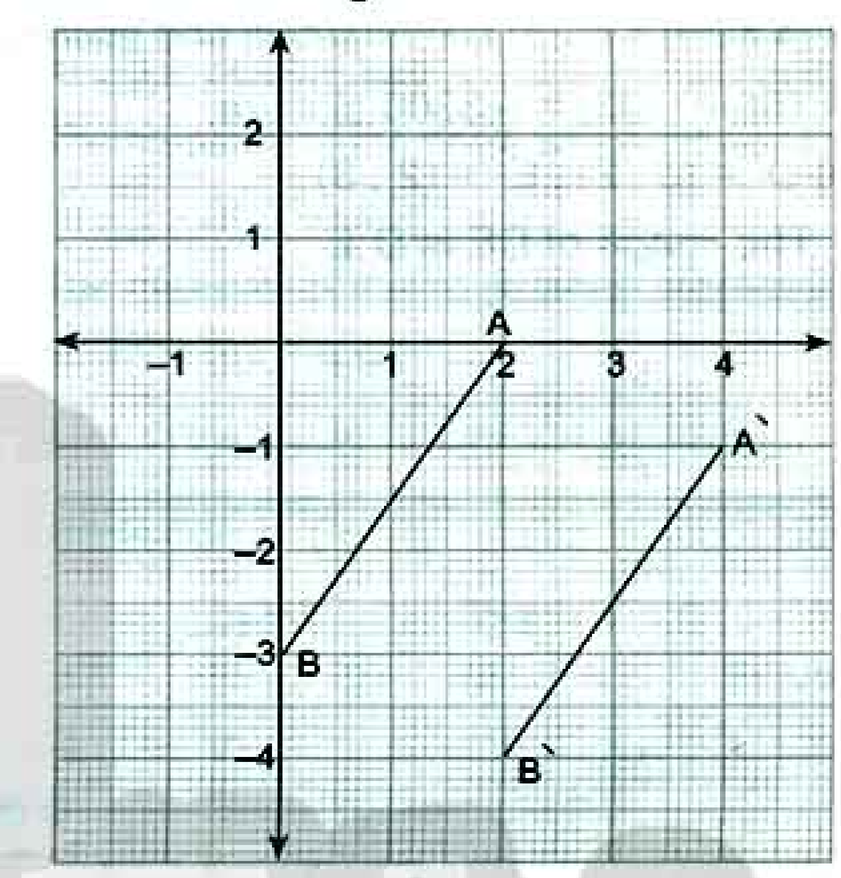
**3. 21)** S.S. = {2 , 3 , 1 , 0 , –1 , ............}

(number line: –5 –4 –3 –2 –1 0 1 2 3)

**22)** $-(a + b)^0 = -(-2 - 3)^0 = -(-5)^0 = -1$

**23)** The area of one face = 468 ÷ 6 = 78 cm$^2$
The L.S.A. = 4 × 78 = 312 cm$^2$

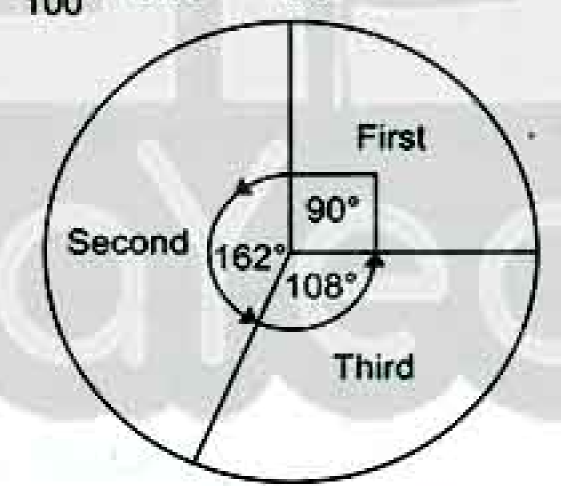
**24)** A\` = (4 , –1), B\` = (2 , –4)
$\overline{A`B`}$ is the image of $\overline{AB}$




**25)**

| Farm | First | Second | Third |
|---|---|---|---|
| Percentage | 25% | 45% | 30% |

The measure of the angle that represents the first = $\frac{25}{100} \times 360° = 90°$




The measure of the angle that represents the second = $\frac{45}{100} \times 360° = 162°$

The measure of the angle that represents the third = $\frac{30}{100} \times 360° = 108°$

**10** Alexandria - El Montazah Educational Zone - Maths Supervision

**1. 1)** zero **2)** (1 , –3) **3)** $\in$ **4)** $x \le 2$
**5)** $\frac{1}{6}$ **6)** $49\pi$ cm$^2$ **7)** zero **8)** –1
**9)** $\varnothing$ **10)** second **11)** 90° **12)** <

**2. 13)** 2 r **14)** 6 **15)** 4 **16)** 15
**17)** 400 **18)** $\frac{1}{2}$ **19)** {0} **20)** (–1 , 2)

**3. 21)** $2x - 1 = -3$

$2x = -3 + 1 = -2$

$\frac{2x}{2} = \frac{-2}{2} \Rightarrow x = -1$

S.S. {−1}

**22)** The area of one face = 36 ÷ 4 = 9 $cm^2$

The T.S.A. = 9 × 6 = 54 $cm^2$

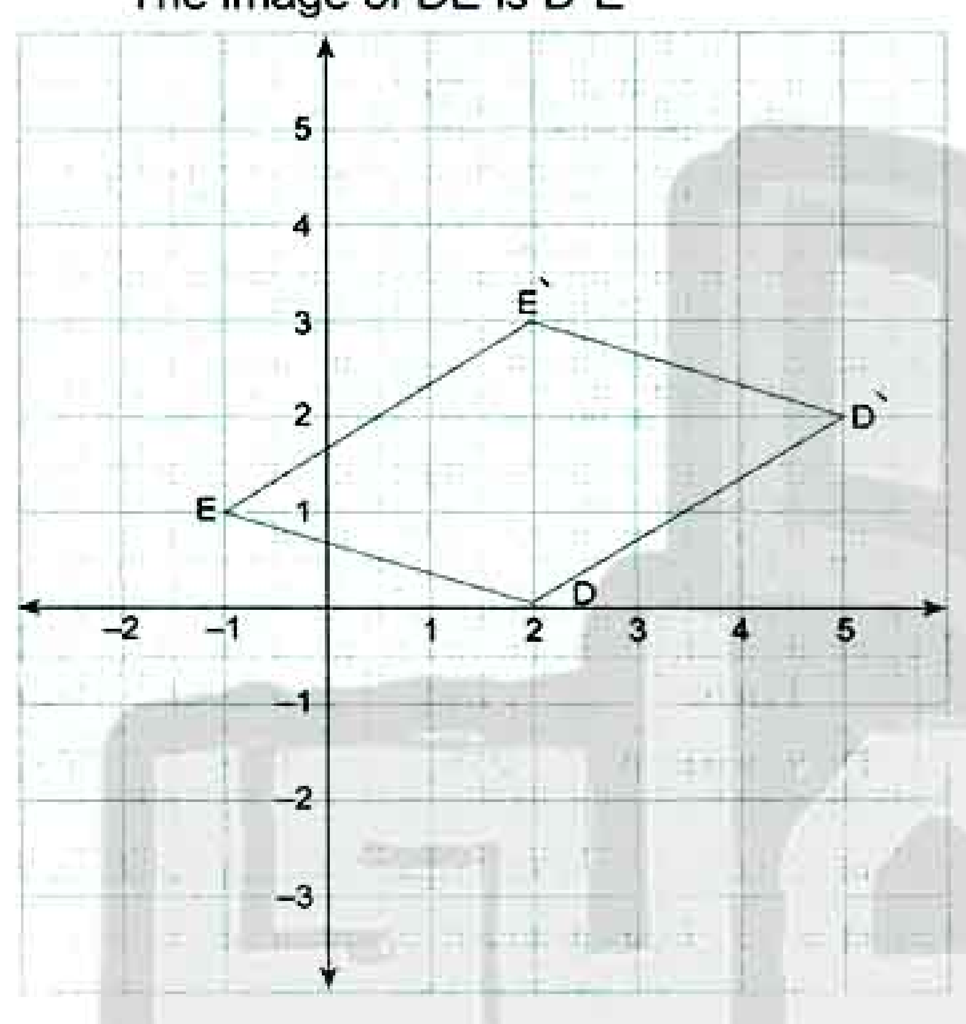
**23)** 4 × (−33) × 25

= (4 × 25) × (−33) commutative and associative

= 100 × (−33) = − 3300 closure

**24) a)** D` = (5 , 2) , E` = (2 , 3)

The image of $\overline{DE}$ is $\overline{D`E`}$

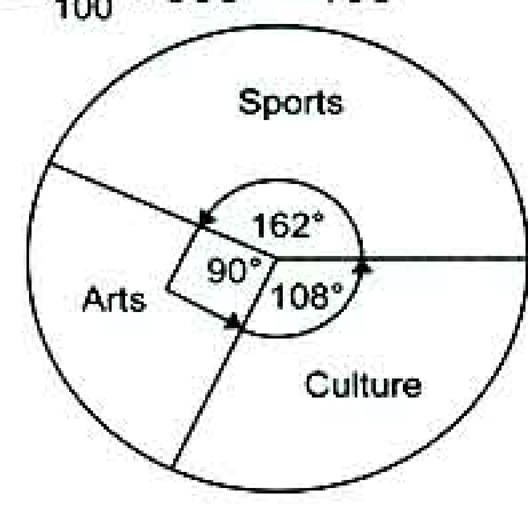



**b)** The name of the shape DD`EE` is a parallelogram.

**25)** The measure of the angle which represents sports $= \frac{45}{100} \times 360° = 162°$

The measure of the angle which represents arts $= \frac{25}{100} \times 360° = 90°$

The measure of the angle which represents culture $= \frac{30}{100} \times 360° = 108°$




**11** Alexandria - East Educational Directorate - Maths Inspectorate

**1. 1)** $\mathbb{Z}^-$ **2)** ⊂ **3)** −3 **4)** =

**5)** < **6)** 5 **7)** −1 **8)** 144

**9)** (−2 , −7) **10)** 4 **11)** 360° **12)** zero

**2. 13)** 12 **14)** 7 **15)** {2 , 1 , 0}

**16)** (3 , 5) **17)** 6 **18)** 150 **19)** 40

**20)** $\frac{1}{6}$

**3. 21)** The order is: −15 , −9 , |−9| , 16 , 17

**22)** $(-5)^{3+2-4} = (-5)^1 = -5$

**23)** The area of the circle = $\pi r^2$

$= \frac{22}{7} \times \frac{7}{2} \times \frac{7}{2} = 38.5$ $cm^2$

**12** Menofia - El-Sadat Directorate - Mathematics Supervision

**1. 1)** $x = 9$ **2)** (5 , −5) **3)** > **4)** 0.5

**5)** N **6)** 2 : 3 **7)** 10 **8)** ⊄

**9)** 1 **10)** 90° **11)** 4 **12)** −2

**2. 13)** 3 **14)** 6 **15)** Second

**16)** zero **17)** 180° **18)** {3 , 2 , 1 , 0}

**19)** − 25 **20)** ∅

**3. 21)** $2^4 \times (-2)^{7-5-2}$

$2^4 \times (-2)^0 = 2^4 \times 1 = 16$

**22)** L.S.A. = perimeter of base × h

= 2 (16 + 7) × 9

= 46 × 9 = 414 $cm^2$

T.S.A. = L.S.A. + area of one base

= 414 + (16 × 7)

414 + 112 = 526 $cm^2$

**23)** Area of the shaded part

= area of circle − area of square

$= \pi r^2 - \frac{d^2}{2} = \frac{22}{7}(7)^2 - \frac{(14)^2}{2} = 154 - 98 = 56$ $cm^2$

**24) a)** $x + 8 = 19$

$x = 19 - 8 = 11$ S.S. = {11}

**b)** $1 - 2x > 5$ $-2x > 5 - 1$

$\frac{-2x}{-2} > \frac{4}{-2}$

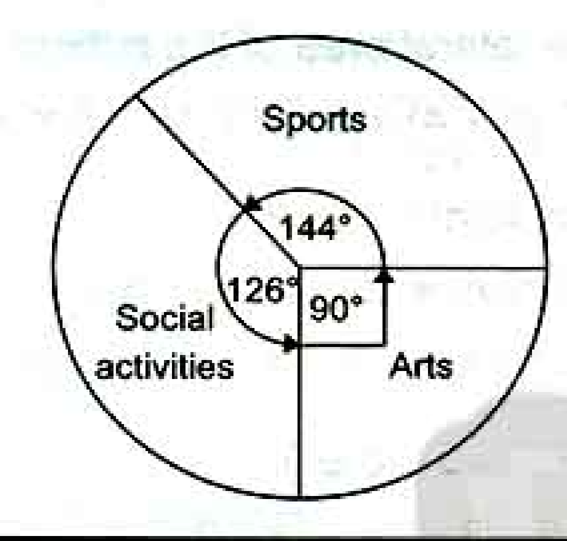
$x < -2$

S.S. = {−3, −4, ........}.

**25)** The measure of the angle which represents sports $= \frac{40}{100} \times 360 = 144°$

The measure of the angle which represents social activities $= \frac{35}{100} \times 360° = 126°$

The measure of the angle which represents arts $= \frac{25}{100} \times 360° = 90°$




## 13 Gharbia - Educational Zone - Maths Inspectorate

**1. 1)** $\mathbb{Z}^-$ **2)** third($3^{rd}$) **3)** $(-5 , -1)$ **4)** $x + 1$
**5)** 2 **6)** $16\pi$ **7)** $\varnothing$ **8)** $\frac{3}{20}$
**9)** $|-5|$ **10)** 0.3 **11)** $\frac{1}{6}$ **12)** $\mathbb{Z}^+$

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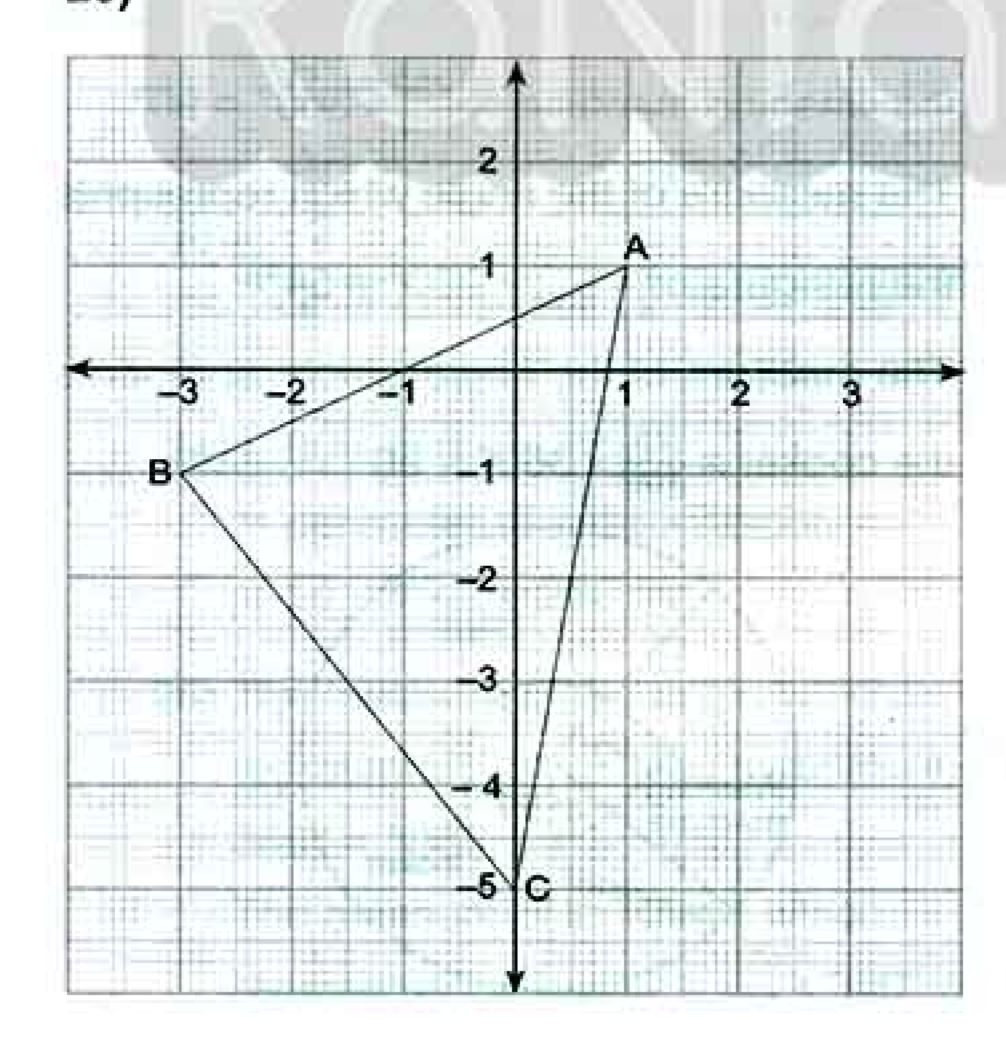
**2. 13)** 4 × the area of one face
**14)** 12 **15)** (1 , 0) **16)** 314 **17)** – 4
**18)** 160 **19)** 5 **20)** 16

---

**3. 21)** $8^{3+5-8} = 8^0 = 1$

**22)** The area of the shaded part
$= 8 \times 7 - \frac{22}{7} \times \frac{7}{2} \times \frac{7}{2} = 56 - 38.5 = 17.5 \text{ cm}^2$

**23)**




**24) 1)** The probability of getting a number greater than 6 = zero

2) the probability of getting a prime number $= \frac{1}{2}$

**25)** The measure of the angle which represents the $1^{st}$ $= \frac{10}{100} \times 360° = 36°$

The measure of the angle which represents the $2^{nd}$ $= \frac{35}{100} \times 360° = 126°$

The measure of the angle which represents the $3^{rd}$ $= \frac{30}{100} \times 360° = 108°$

The measure of the angle which represents the $4^{th}$ $= \frac{25}{100} \times 360° = 90°$

**The drawing is left to the student.**

## 14 Kafr El-Sheikh - Mathematics Supervision

**1. 1)** 0 **2)** 0.5 **3)** $x > 7 - 5$
**4)** – 45 **5)** (2 , 2) **6)** –1 **7)** 484
**8)** – 4 **9)** 1 **10)** $\subset$ **11)** third
**12)** 6

---

**2.** 13) zero 14) $r^2$ 15) 216
**16)** –2 **17)** $\frac{8}{20} = \frac{2}{5}$ **18)** (5 , –6)
**19)** 20 **20)** height

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**3. 21)** $63 \times (85 + 15) = 63 \times 100 = 6300$

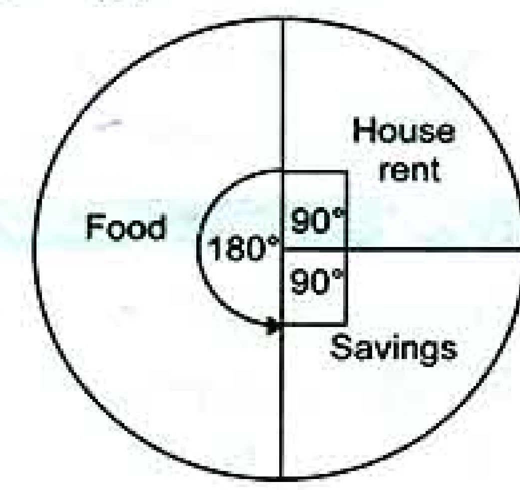
**22)** $3x + 2 \leq 11$ $x \in \mathbb{Z}$
$3x \leq 11 - 2$ $\frac{3x}{3} \leq \frac{9}{3} \Rightarrow x \leq 3$
S.S. = {3 , 2 , 1 , 0 , –1 , –2 , ........}

**23)** L.S.A. $= 4 \times 9 \times 20 = 720 \text{ cm}^2$
T.S.A. $= 720 + 2 \times 9 \times 9 = 720 + 162 = 882 \text{ cm}^2$

**24)** The measure of the angle that represents the rent of the house $= \frac{25}{100} \times 360° = 90°$

The measure of the angle that represents food $= \frac{50}{100} \times 360° = 180°$

The measure of the angle that represents savings $= \frac{25}{100} \times 360° = 90°$



25) The area of the circle = $\pi r^2$

$= 3.14 \times 6 \times 6 = 113.04$ cm$^2$

## 15 Damietta - Directorate of Official Language Schools

1. 1) $\mathbb{N}$ 2) third 3) 16 4) (–2 , 3)
5) $\frac{1}{2}$ 6) zero 7) – 4 8) 256
9) 120 10) $\mathbb{Z}^-$ 11) 1 12) {2}

2. 13) $\frac{(-2)^{7+5}}{2^{10}} = \frac{(-2)^{12}}{2^{10}} = 2^{12-10} = 2^2 = 4$
14) 10 15) 6 16) 8 17) $\frac{8}{16} = \frac{1}{2}$
18) 1 19) (–1 , 5) 20) $\pi r^2$

3. 21) $3x - 2 \ge 4$

$3x \ge 6 \Rightarrow x \ge 2$

S.S. = {2 , 3 , 4 , ..........}

22) 115 + 390 + (–115) = [115 + (–115)] + 390

Commutative and associative property

= 0 + 390 additive inverse = 390 closure

23) The total area of cube = 12 × 12 × 6 = 864 cm$^2$

24) The area of the circle

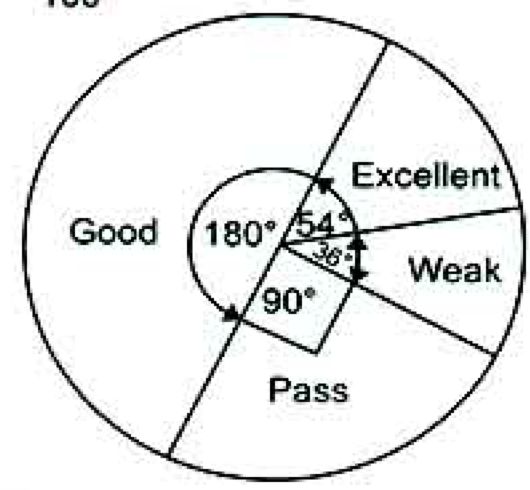
$= \pi r^2 = \frac{22}{7} \times 7 \times 7 = 154$ cm$^2$

25) The measure of the angle which represents excellent = $\frac{15}{100} \times 360° = 54°$

The measure of the angle which represents good = $\frac{50}{100} \times 360° = 180°$

The measure of the angle which represents pass = $\frac{25}{100} \times 360° = 90°$

The measure of the angle which represents weak = $\frac{10}{100} \times 360° = 36°$




## 16 Sharkia - Directorate of Education - Mathematics Department

1. 1) zero 2) 3 3) –3 4) $\frac{1}{6}$
5) $3^3$ 6) {–2} 7) {–5 , –1} 8) ∅
9) 360° 10) –1 11) –6 12) 54

2. 13) (–5) × [7 + (–5)] = (–5) × 2 = –10
14) Second degree 15) 16 16) 2
17) –1 18) –1 19) zero 20) m – n

3. 21) $\frac{2^5 \times (-2)^3}{(-2) \times 2^4} = 2^{5-4} \times (-2)^{3-1} = 2 \times (-2)^2$

$= 2 \times 4 = 8$

22) 1) The lateral area of the cuboid

= 2 (6 + 4) × 8 = 2 × 10 × 8 = 160 cm$^2$

2) The total surface area

= L.S.A. + area of two bases

= 160 + 2 × 6 × 4 = 160 + 48 = 208 cm$^2$

23) a) $x + 3 < 5$ , $x \in \mathbb{Z}$

$x < 5 - 3$ $x < 2$

Then the S.S. = {1 , 0 , –1 , –2, .......}

b) $2x + 1 = -9$ , $x \in Z$

$2x = -9 - 1$ $\frac{2x}{2} = \frac{-10}{2}$

$x = -5$ The S.S. = {–5}

24) 1) The surface area of the circle M = $\pi r^2$

$= \frac{22}{7} \times 14 \times 14 = 616$ cm$^2$

2) The area of one circular sector

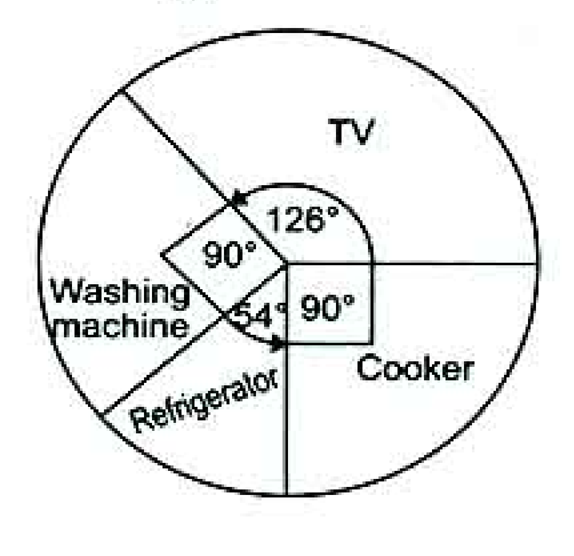
= 616 ÷ 8 = 77 cm$^2$

25) The measure of the angle which represents TV = $\frac{35}{100} \times 360° = 126°$

The measure of the angle which represents the washing machine = $\frac{25}{100} \times 360° = 90°$

The measure of the angle which represents the refrigerator = $\frac{15}{100} \times 360° = 54°$

The measure of the angle which represents the cooker = $\frac{25}{100} \times 360° = 90°$



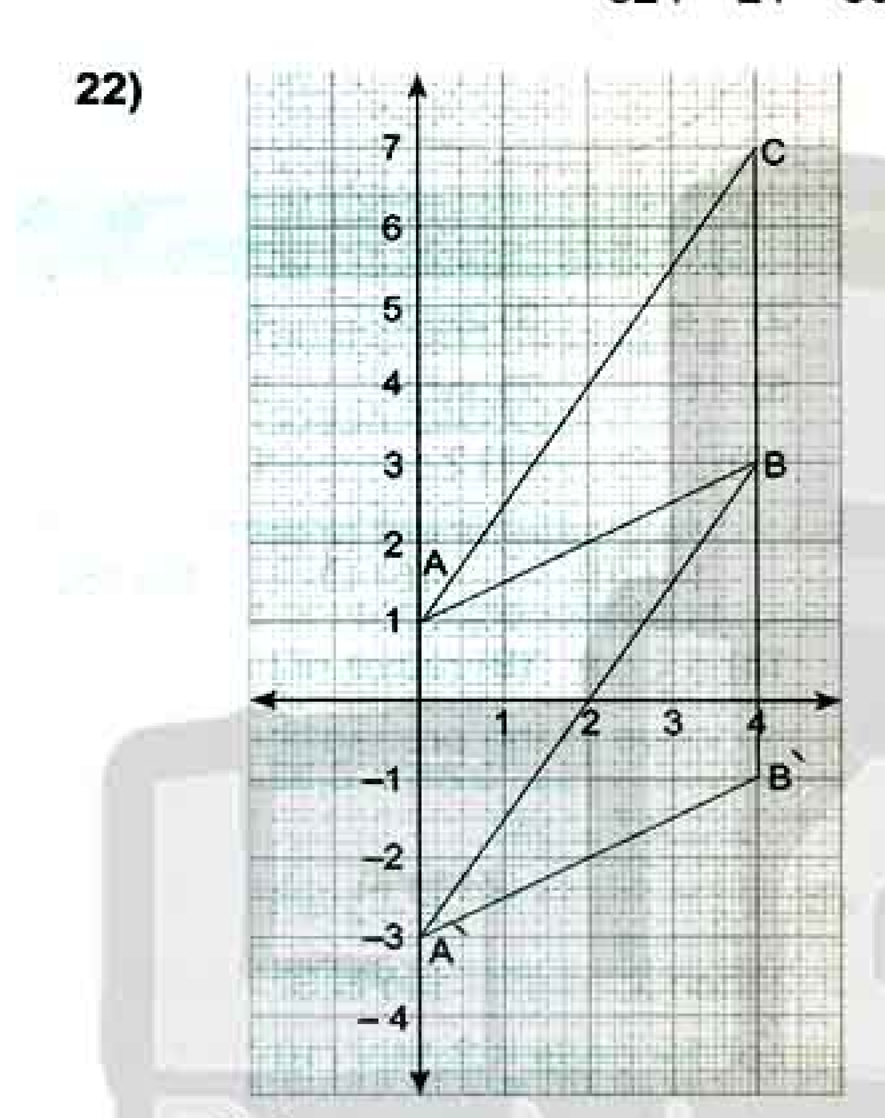
**17** Port Said - Educational Directorate - Mathematics Inspectorate

**1. 1)** 2r **2)** $\mathbb{Z}^-$ **3)** 6 **4)** zero
**5)** ∈ **6)** $2^7$ **7)** zero **8)** 3
**9)** 6 **10)** zero **11)** (3 , 5) **12)** – 4

**2. 13)** 6 **14)** 40 $cm^2$ **15)** 1 **16)** 360°
**17)** $r^2$ **18)** 5 **19)** $\mathbb{N}$ **20)** 3

**3. 21)** $(4 \times 3^2 \times 3^2) - 7 \times 3 = 4 \times 81 - 21$
$= 324 - 21 = 303$

**22)**



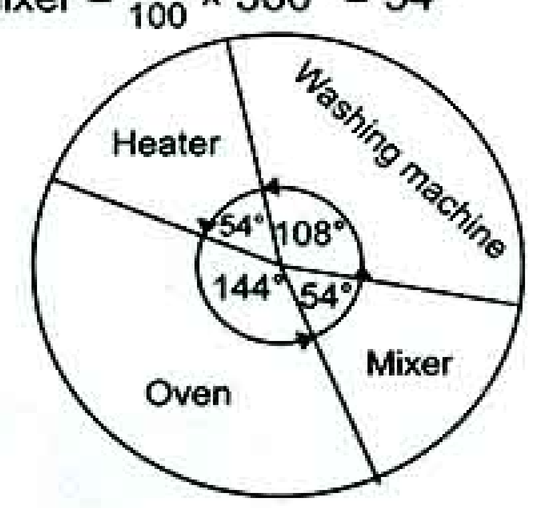
**1)** 4
**2)** A` = (0 , –3), B` = (4 , –1)
C` = (4 , 3)
ΔA`B`B is the image of Δ ABC

**23)** $x - 2 \geq 3 \Rightarrow x \geq 5$

S.S. = {5 , 6 , 7 , ............}

**24)** L.S.A. of the cuboid
= perimeter of base × height
= 10 × 4 × 7 = 280 $cm^2$

**25)** The measure of the angle which represents the washing machine = $\frac{30}{100} \times 360° = 108°$
The measure of the angle which represents the heater = $\frac{15}{100} \times 360° = 54°$
The measure of the angle which represents the oven = $\frac{40}{100} \times 360° = 144°$
The measure of the angle which represents the mixer = $\frac{15}{100} \times 360° = 54°$




**18** Ismailia - Directorate of Education

**1. 1)** $\mathbb{Z}^-$ **2)** 1 **3)** (5 , 4) **4)** 360°
**5)** –6 **6)** second **7)** 100 **8)** 5
**9)** 2 **10)** – 4 **11)** 9 π **12)** 5

**2. 13)** –1 **14)** $\frac{1}{2}$ **15)** 2 : 3
**16)** 864 **17)** 6 **18)** 1 **19)** 280
**20)** 616

**3. 21) a)** $7^{5+3-6} = 7^2 = 49$

**b)** 116 + 190 + (–116) = [116 + (–116)] + 190
commutative and associative property
= zero + 190 (additive identity) = 190 closure

**22)** $2x + 1 = -13$ $2x = -13 - 1$
$2x = -14$ $x = \frac{-14}{2} = -7$
The S.S. = {–7}

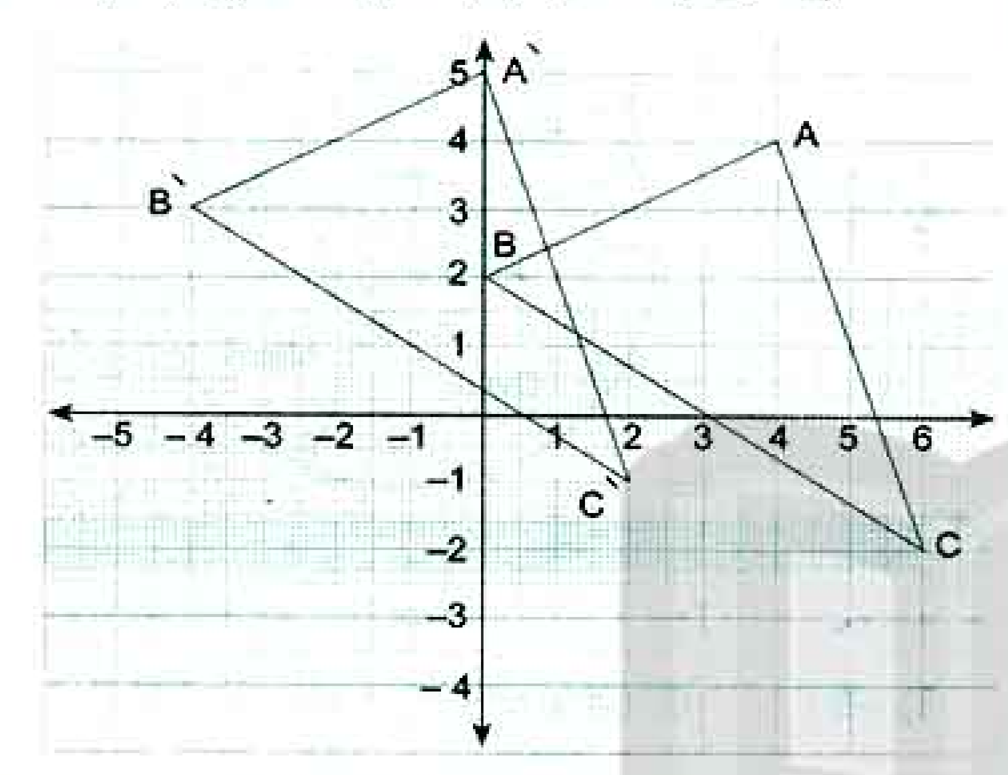
**23)** L.S.A. = perimeter of base × height
= 2 × (6 + 4) × 8 = 160 $cm^2$
The T.S.A. = L.S.A. + area of 2 bases
= 160 + 2 (6 × 4) = 160 + 48 = 208 $cm^2$

**24)** S = {1 , 2 , 3 , 4 , 5 , 6 , 7 , 8 , 9 , 10}
**1)** The probability that the drawn ball has an odd number = $\frac{5}{10} = \frac{1}{2}$
**2)** The probability that the drawn ball has a number divisible by 3 = $\frac{3}{10}$

3) The probability that the drawn ball is an even prime number = $\frac{1}{10}$

4) The probability that the drawn ball has a number more than 6 = $\frac{4}{10} = \frac{2}{5}$

25) A` = (0 , 5), B` = (– 4 , 3) , C` = ( 2 , –1)



## 19 Suez - Maths Inspectorate

1. 1) zero 2) ⊂ 3) second 4) =
5) zero 6) 360° 7) $\mathbb{Z}^-$ 8) =
9) 6 10) 7 11) –20
12) (–3 , 0)

2. 13) $\mathbb{Z}^-$ 14) diameter 15) $2^5$
16) – 4 17) height 18) 400 cm$^2$
19) perimeter of the rectangle 20) $\frac{8}{16} = \frac{1}{2}$

3. 21) (–7) + 19 + 17
= [(–7) + 17]+19
commutative and associative properties
= 10 + 19 = 29 closure.

22) $x - 2 \le 3 \Longrightarrow x \le 3 + 2$
$x \le 5$ S.S. in $\mathbb{Z}$ = {5 , 4 , ...... , –1 , –2 , ......}

23) The surface area of the circle = $\pi r^2$
= $\frac{22}{7} \times 7 \times 7 = 154$ cm$^2$

24) L.S.A. = perimeter of base × height
= 10 × 4 × 7 = 280 cm$^2$

25) The measure of the angle which represents the washing machine = $\frac{25}{100} \times 360° = 90°$
The measure of the angle which represents the heater = $\frac{15}{100} \times 360° = 54°$
The measure of the angle that represents the oven = $\frac{40}{100} \times 360° = 144°$
The measure of the angle which represents the mixer = $\frac{20}{100} \times 360° = 72°$




## 20 Fayoum - Directorate of Education - Mathematics Supervision

1. 1) $\mathbb{Z}$ 2) – 4 3) zero 4) 7
5) > 6) –1 7) $xy$ 8) (1 , 0)
9) $\frac{1}{2}$ 10) $\frac{1}{4}$ 11) 2 : 3 12) 60

2. 13) third 14) {0} 15) ∅ 16) 150
17) 7 18) $6\frac{2}{3}$ cm 19) radius of the circle
20) zero ≤ the value of the probability ≤ 1

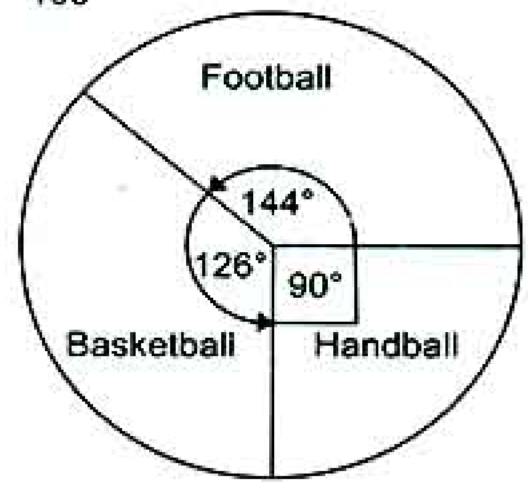
3. 21) $(-5)^{5+4-7} = (-5)^2 = 25$

22) $\frac{3}{3}(x + 2) = \frac{3}{3}$   $x + 2 = 1$
$x = 1 - 2$ then $x = -1$   the S.S. = {–1}

23) The area of the circle = 3.14 × (10)$^2$ = 314 cm$^2$

24) L.S.A. = (10 + 5) × 2 × 8 = 240 cm$^2$
T.S.A. = L.S.A. + area of bases
= 240 + 2 × 10 × 5 = 340 cm$^2$

25) The measure of the angle which represents the football = $\frac{40}{100} \times 360° = 144°$
The measure of the angle which represents basketball= $\frac{35}{100} \times 360° = 126°$
The measure of the angle which represents handball = $\frac{25}{100} \times 360° = 90°$



## 21 Assuit - Administration of Distinguished Language Schools

1. 1) ∈ 2) 1 3) –1 4) zero

5) –2 6) $\frac{1}{3}$ 7) $2^8$ 8) 5

9) $x \geq 3$ 10) 154 11) 5 12) {3}

2. 13) ∅ 14) 10 15) 25 16) (5 , 4)

17) 216 18) 5 units 19) second 20) $\frac{1}{6}$

3. 21) S.S. = {2 , 1 , 0}

22) (–116) + 190 + 116 = [(–116) + 116] + 190

commutative and associative property

= 0 + 190 the additive neutral

= 190 closure property

23) The area of the shaded part

= area of rectangle – area of circle

$= 12 \times 7 - \left(\frac{7}{2}\right)^2 \times \frac{22}{7}$

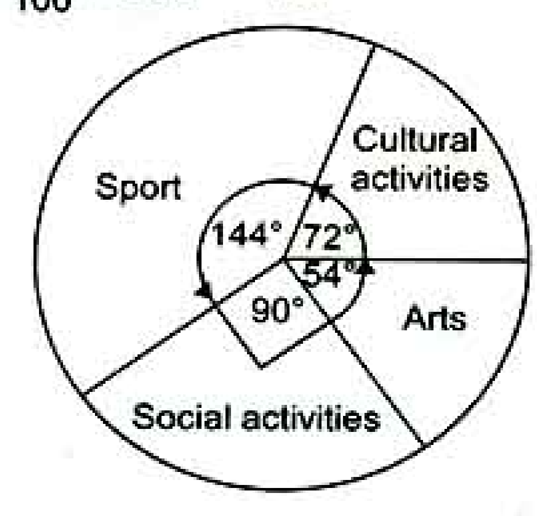
$= 84 - 38.5 = 45.5 \text{ cm}^2$

24) The measure of the angle which represents the cultural activities $= \frac{20}{100} \times 360° = 72°$

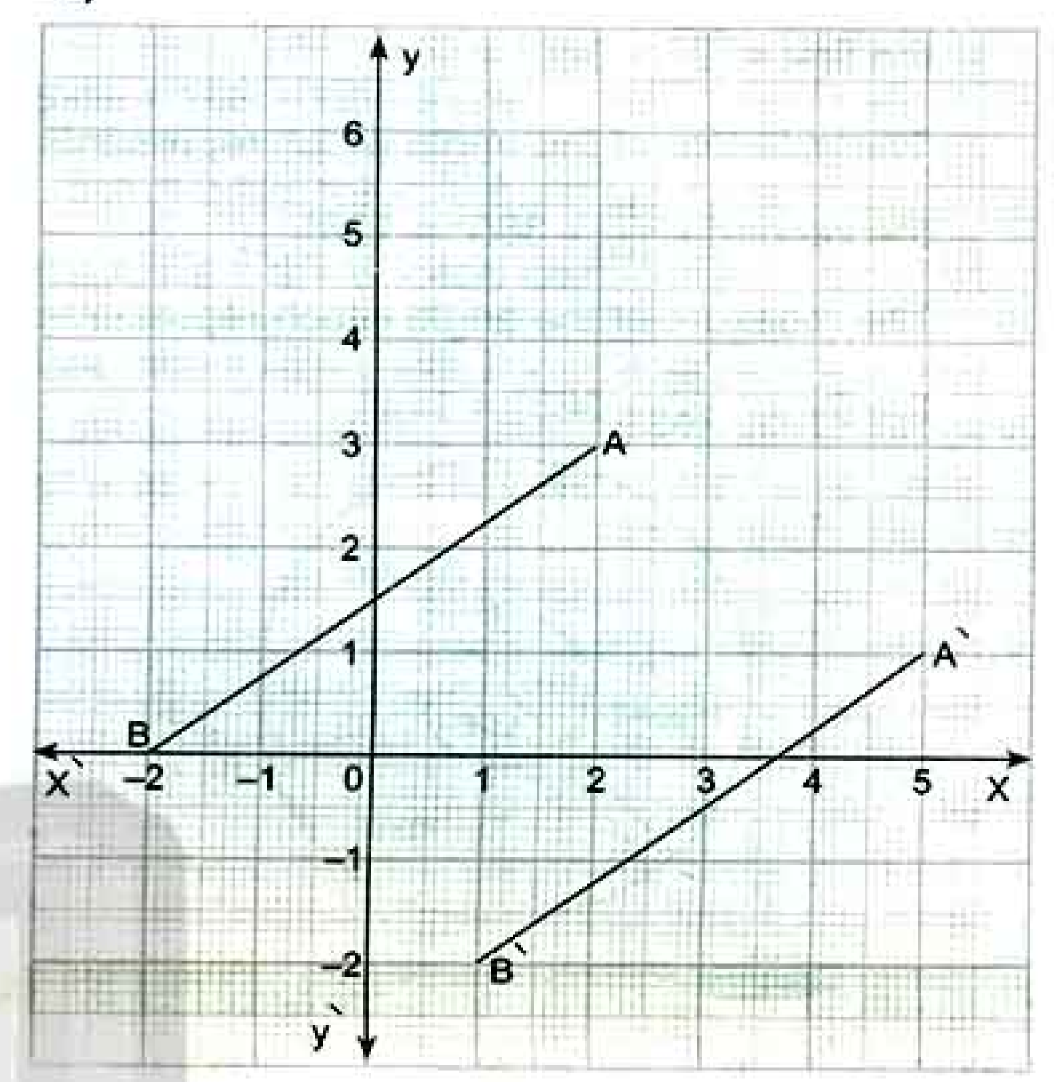
The measure of the angle which represents sport $= \frac{40}{100} \times 360° = 144°$

The measure of the angle which represents social activities $= \frac{25}{100} \times 360° = 90°$

The measure of the angle which represents arts $= \frac{15}{100} \times 360° = 54°$




25)




## 22 Qena - Qeft Educational Directorate

1. 1) ∅ 2) 30 3) 12 4) –3

5) $Z^-$ 6) 2r 7) 6 8) 144

9) (0 , 3) 10) 360° 11) 0.5 12) ⊂

2. 13) 5 14) 5 15) 2

16) 54 (117 – 17) = 54 × 100 = 5400

17) 154 $\text{cm}^2$ 18) 6

19) zero , 1 20) ⊂

3. 21) $2^{5-4} \times (-2)^{3-1} = 2 \times (-2)^2 = 2 \times 4 = 8$

22) $2x + 9 \leq 1$

$2x \leq 1 - 9 \Rightarrow 2x \leq -8$

then $x \leq -4$

1) S.S. = {– 4 , –5 , –6 , .......} $x \in Z$

2) The S.S. in N = ∅

23) 1) L.S.A.= 2 × (6 + 4) × 8 = 20 × 8 = 160 $\text{cm}^2$

2) T.S.A. = 160 + 2 × 6 × 4 = 160 + 48 = 208 $\text{cm}^2$

24) 1) The probability of drawing a white ball

$= \frac{8}{20} = \frac{2}{5}$

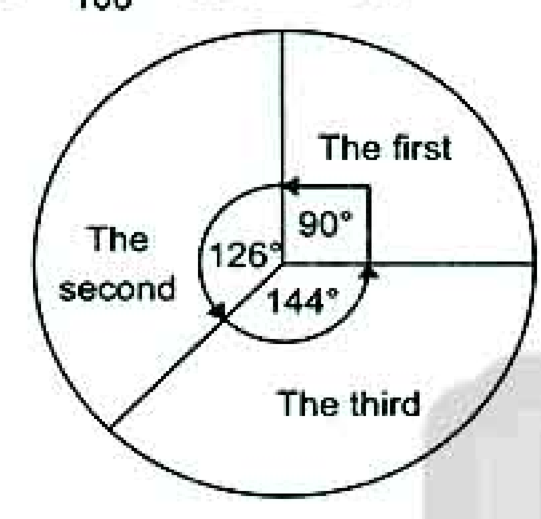
2) The probability of drawing red ball

$= \frac{12}{20} = \frac{3}{5}$

25) The measure of the angle which represents the first = $\frac{25}{100} \times 360° = 90°$

The measure of the angle which represents the second = $\frac{35}{100} \times 360° = 126°$

The measure of the angle which represents the third = $\frac{40}{100} \times 360° = 144°$




## 23 Sohage - Educational Directorate City Private Schools

1. 1) $\not\subset$ 2) $\frac{1}{2}$ 3) 5 4) zero
5) 54 6) (5 , 3) 7) third 8) zero
9) $Z^+$ 10) 1 11) 154 12) $\frac{1}{6}$

2. 13) $\frac{1}{2}$ 14) zero 15) 36 16) 4
17) 157 $cm^2$ 18) (–1 , –2 , –3 , – 4)
19) N 20) –1

3. 21) $3x + 1 > -5$ $\quad 3x > -6 \Rightarrow x > -2$
S.S. = {–1 , 0 , 1 , 2 , ........}

22) The area of the shaded part
= area of square – area of circle
$= 10 \times 10 - \frac{22}{7} \times 5 \times 5$
$= 100 - 78\frac{4}{7} = 21\frac{3}{7}$ $cm^2$

23) L.S.A. = perimeter of base × height
= (16 + 7) × 2 × 19 = 46 × 19
= 874 $cm^2$

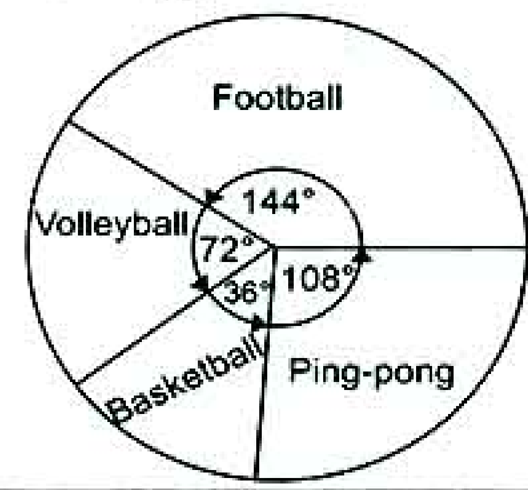
24) $(-11) \times [5 + (-3)] = (-11) \times 5 + (-11) \times (-3)$
$= -55 + 33 = -22$

25) The measure of the angle that represents football = $\frac{40}{100} \times 360° = 144°$

The measure of the angle that represents volleyball = $\frac{20}{100} \times 360° = 72°$

The measure of the angle that represents basketball = $\frac{10}{100} \times 360° = 36°$

The measure of the angle that represents ping pong = $\frac{30}{100} \times 360° = 108°$




## 24 Luxor - Educational Directorate - El-Salam Language School

1. 1) $\frac{1}{2}$ 2) 2 3) (5 , 4) 4) second
5) 0 6) 40 7) 3 8) 2
9) < 10) –7 11) –2 12) 360

2. 13) $\varnothing$ 14) 4 15) zero 16) 3
17) height 18) 4 19) (2 , 2) 20) $\pi r^2$

3. 21) $2^{3+4-7} = 2^0 = 1$

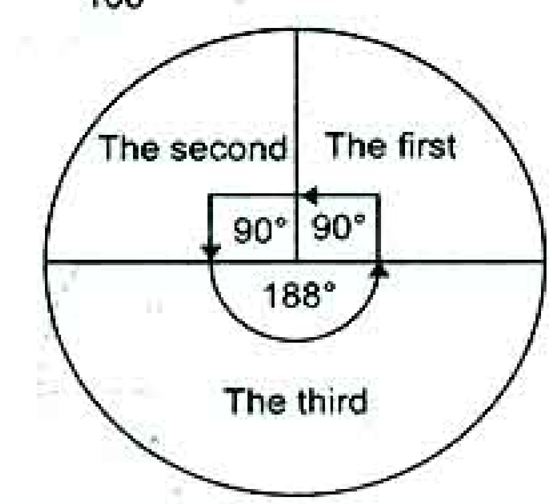
22) $2x + 1 \geq 5$ in Z
$2x \geq 5 - 1$ $\quad 2x \geq 4 \Rightarrow x \geq 2$
S.S. = {2 , 3 , 4 , ........}

23) The area of the circle = $\pi r^2 = \frac{22}{7} \times 7 \times 7 = 154$ $cm^2$

24) The measure of the angle which represents the first = $\frac{25}{100} \times 360° = 90°$

The measure of the angle which represents the second = $\frac{25}{100} \times 360° = 90°$

The measure of the angle which represents the third = $\frac{50}{100} \times 360° = 180°$




## Pre-exam Final Revision

1. 1) $\mathbb{Z}^-$ 2) –1 3) –1 4) –12
5) $(-3)^3$ 6) 50 7) A = {–3} 8) $\mathbb{Z}$

**9)** $\varnothing$ **10)** $\mathbb{N}$ **11)** (–5, –1) **12)** 2

**13)** Zero **14)** $\notin$ **15)** Zero

**16)** 90° **17)** $\mathbb{N}$ – {0}

**From 18 to 28 are left to the student.**

**2. 1)** 2 (L + w) × h

**2)** It is an experiment in which we can determine all its possible outcomes before carrying it out, but we can't predict certainly which of these outcomes will occur.

**3)** 9 (4 + (–3)) = 9 × 4 + 9 × (–3) = 9

**4)** $7^3$

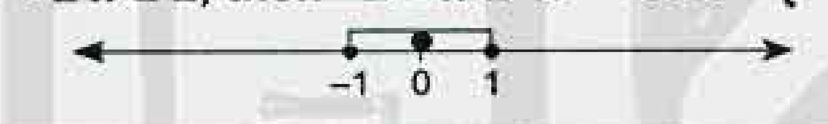
**5)** 18, each number is more than its predecessor by 4.

**6)** 5 cm. **7)** 6 **8)** Zero

**9)** 78.5 **10)** (1, 3)

**From 11 to 27 are left to the student.**

**3.** $-4 < 2x \le 2$, then $-2 < x \le 1$. **S.S. = {–1, 0, 1}**




**4.** a) $2x \ge 8$ (÷2) , then $x \ge 4$ S.S. = {4, 5, 6, 7, ....}

**b)** $3x = 6$ $x = 2$ S.S. = {2}

**5. The area of the squared shaped cardboard = 80 × 80 = 6400 cm²**

The total area of the cuboid

= (L + W) × 2 × h + 2 × L × W

= [(40 + 20) × 2 × 30] + [2 × 40 × 20] = 5200 cm²

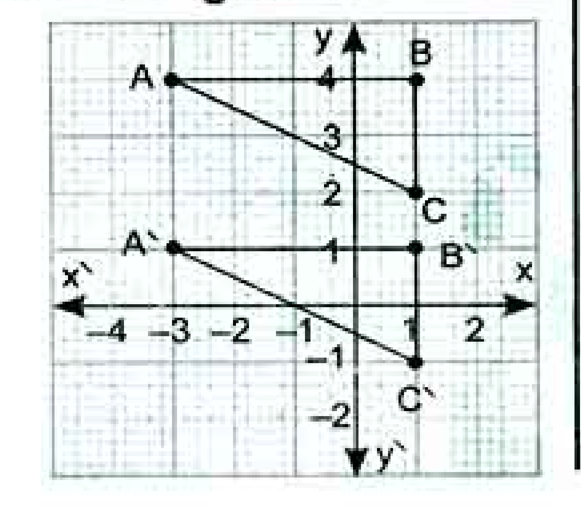
The piece of cardboard is enough to design the cuboid.

**6. AB = 4 length units, BC = 2 length units**

A` = (–3, 1)

B` = (1, 1)

C` = (1, –1)



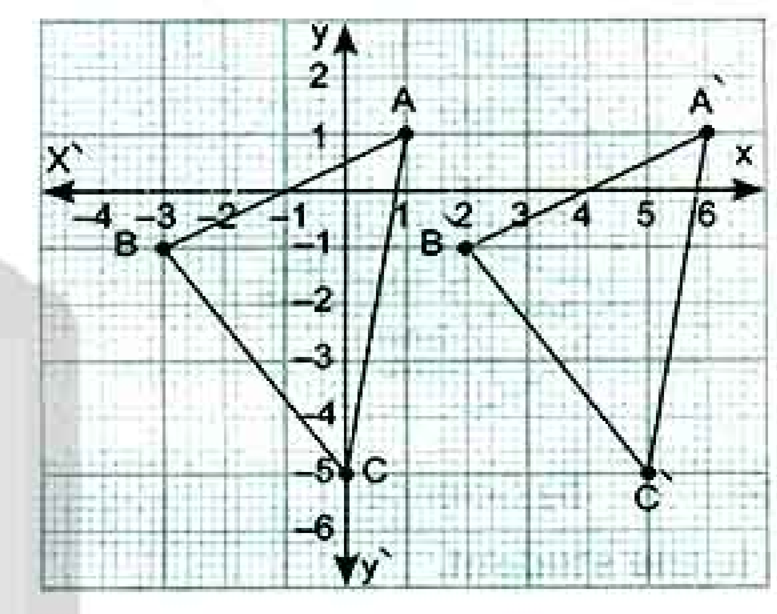

**7.** Side = 108 ÷ 12 = 9 cm

L.S.A.= 9 × 9 × 4 = 324 cm²

T.S.A.= 9 × 9 × 6 = 486 cm²

The ratio = 324 : 486 = 2 : 3 or $\frac{2}{3}$

**8.** A` = (6, 1) B` = (2, –1) C` = (5, –5)




**9.** $r^2 = 2826 \div 3.14 = 900 \longrightarrow r = 30$ cm

Circumference = $2\pi r$ = 2 (3.14) × 30 = 188.4 cm.

**10.** The measure of the angle of the sector that represents the production of TV sets

$= \frac{30 \times 360}{100} = 108°$

The measure of the angle of the sector that represents the washing machine = $\frac{25}{100} \times 360°$ = 90°

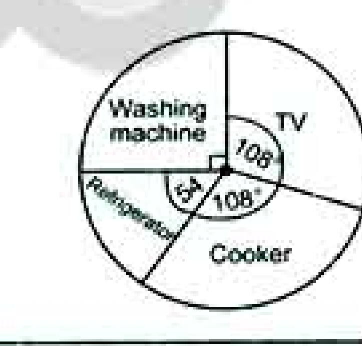
The measure that represents the refrigerator

$= \frac{15 \times 360}{100} = 54°$

and the measure of the angle which represents the cooker

$= \frac{30 \times 360}{100} = 108°$






**11.** The measure of the angle of the sector that represents Arabic = $\frac{9}{40} \times 360° = 81°$

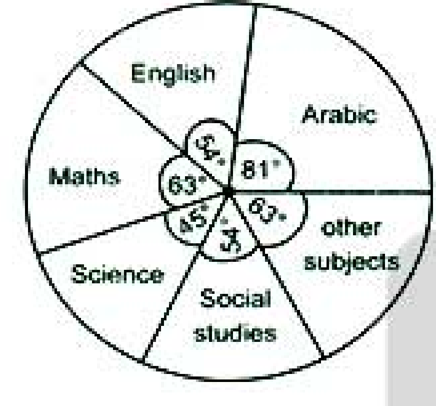
The measure of the angle of the sector that represents English = $\frac{6}{40} \times 360° = 54°$

The measure of the angle of the sector that represents maths = $\frac{7}{40} \times 360° = 63°$

The measure of the angle of the sector that represents science $= \frac{5}{40} \times 360° = 45°$

The measure of the angle of the sector that represents social studies $= \frac{6}{40} \times 360° = 54°$

The measure of the angle of the sector that represents other subjects $= \frac{7}{40} \times 360° = 63°$




**a)** Arabic **b)** Science

**c) Left to the student.**

**12.** $S = \{w_1, w_2, w_3, w_4, w_5, r_1, r_2, r_3, r_4, r_5, r_6, r_7, r_8, r_9\}$

**a)** $\frac{5}{14}$ **b)** $\frac{9}{14}$ **c)** Zero.

**13.** S = {12, 13, 21, 23, 31, 32}

**a)** The probability of getting an odd prime number $= \frac{3}{6} = \frac{1}{2}$

**b)** The probability of getting an even number $= \frac{2}{6} = \frac{1}{3}$

**14. a)** A = {2, 4, 6, 8, 10, 12, 14, 16, 18, 20}.

P (A) = 1

**b)** P (B) = 1 P (C) $= \frac{3}{10}$

**15. a)** $\frac{4}{6} = \frac{2}{3}$ **b)** $\frac{4}{6} = \frac{2}{3}$

**16. a)** $\frac{4}{10} = \frac{2}{5}$ **b)** $\frac{6}{10} = \frac{3}{5}$ c) Zero

**17. a)** $\frac{4}{10} = \frac{2}{5}$ **b)** $\frac{5}{10} = \frac{1}{2}$ **c)** $\frac{2}{10} = \frac{1}{5}$